

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 3

AMENDED REPORT ☐  
(highlight changes)

APPLICATION FOR PERMIT TO DRILL

1A. TYPE OF WORK: DRILL <input checked="" type="checkbox"/> REENTER <input type="checkbox"/> DEEPEN <input type="checkbox"/>		5. MINERAL LEASE NO: ML-22140	6. SURFACE: Tribal
B. TYPE OF WELL: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input checked="" type="checkbox"/>		7. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ute Tribe	
2. NAME OF OPERATOR: Kerr-McGee Oil & Gas Onshore, LP		8. UNIT or CA AGREEMENT NAME: 891008900A	
3. ADDRESS OF OPERATOR: PO Box 173779 Denver CO 80202-3779		9. WELL NAME and NUMBER: NBU 920-32K	
4. LOCATION OF WELL (FOOTAGES) AT SURFACE: 2,095' FSL 1,813' FWL Lat: 39.989450 Long: -109.692760 NAD 27 AT PROPOSED PRODUCING ZONE: 44271924 39.989428 -109.692815		10. FIELD AND POOL, OR WILDCAT: Natural Buttes Field	
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE: Approximately 38.4 miles south of Vernal, Utah		11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Sec 32 T 9S R 20E S.L.B. & M. NESW	
15. DISTANCE TO NEAREST PROPERTY OR LEASE LINE (FEET) 1,813'		16. NUMBER OF ACRES IN LEASE: 320.00	17. NUMBER OF ACRES ASSIGNED TO THIS WELL: Unit well
18. DISTANCE TO NEAREST WELL (DRILLING, COMPLETED, OR APPLIED FOR) ON THIS LEASE (FEET) ±1,000'		19. PROPOSED DEPTH: 10,500' MD	20. BOND DESCRIPTION: 22013542
21. ELEVATIONS (SHOW WHETHER DF, RT, GR, ETC.): 4,869' KB		22. APPROXIMATE DATE WORK WILL START: ASAP	23. ESTIMATED DURATION: 10 days

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	CASING SIZE, GRADE, AND WEIGHT PER FOOT	SETTING DEPTH	CEMENT TYPE, QUANTITY, YIELD, AND SLURRY WEIGHT
12.25"	9.625" J-55 36#	2,700' (MD)	Premium Cement 215 1.18 15.60
			Premium Cement 50 1.18 15.60
7.875"	4.5" P-110 11.6#	10,500' (MD)	Premium Lite II 510 3.38 11.00
			50/50 Poz G 1,660 1.31 14.30

ATTACHMENTS

VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER     | <input checked="" type="checkbox"/> COMPLETE DRILLING PLAN                                   |
| <input checked="" type="checkbox"/> EVIDENCE OF DIVISION OF WATER RIGHTS APPROVAL FOR USE OF WATER | <input type="checkbox"/> FORM 5, IF OPERATOR IS PERSON OR COMPANY OTHER THAN THE LEASE OWNER |

NAME (PLEASE PRINT) Raleen White TITLE Sr. Regulatory Analyst

SIGNATURE Raleen White Approved by the Utah Division of Oil, Gas and Mining DATE 3-2009

(This space for State use only)  
Federal Approval of this  
Action is Necessary

Oil, Gas and Mining

RECEIVED

FEB 17 2009

API NUMBER ASSIGNED:

43-047 40562

Date:

04-27-09

By:

[Signature] DIV. OF OIL, GAS & MINING

# T9S, R20E, S.L.B.&M.

Found 1968  
Brass Cap in  
Pile of Stones

N89°35'09"W - 2662.45' (Meas.)

N89°40'W 80.74 (G.L.O.)

N89°35'22"W - 2664.40' (Meas.)

Found 1968  
Brass Cap in  
Pile of Stones

Found 1968  
Brass Cap in  
Pile of Stones

N0°47'W 41.45 (G.L.O.)  
2736.15' (Measured)  
N00°43'22"W (Basis of Bearings)

NBU 920-32K (Proposed Well Head)  
NAD 83 LATITUDE = 39.98942° (39° 59' 21.91")  
LONGITUDE = 109.69346° (109° 41' 36.44")  
NAD 27 LATITUDE = 39.98945° (39° 59' 22.04")  
LONGITUDE = 109.69276° (109° 41' 33.94")

**WELL LOCATION:  
NBU 920-32K**

ELEV. UNGRADED GROUND = 4856.6'

32

Found 1957  
Galvanized Cap  
set in Concrete

1813'

Well Surface  
Position

2095'

Found 1968  
Brass Cap in  
Pile of Stones

N00°16'03"E - 2719.46' (Meas.)

N00°13'E 82.46 (G.L.O.)

N0°04'E 42.33 (G.L.O.)

N00°06'19"E - 2795.25' (Meas.)

Corner Established  
Using Proportionate  
Methods, Not  
Monumented.

N89°36'35"E - 2668.52' (Meas.)

N89°35'E 40.43 (G.L.O.)

N89°13'55"E - 2604.53' (Meas.)

N89°04'E 39.49 (G.L.O.)

Found 1928  
Brass Cap with  
Pile of Stones

## NOTES:

- ▲ = Section Corners Located
- 1. Well footages are measured at right angles to the Section Lines.
- 2. G.L.O. distances are shown in feet or chains. 1 chain = 66 feet.
- 3. Bearings are based on Global Positioning Satellite observations.
- 4. Basis of elevation is the Northwest Corner of Section 12, T9S, R20E, S.L.B.&M. The elevation of this Section Corner is shown on the Ouray SE 7.5 Min. Quadrangle as being 4676'.

**Kerr-McGee  
Oil & Gas Onshore, LP**

1099 18th Street - Denver, Colorado 80202

**NBU 920-32K  
WELL PLAT**

**2095' FSL, 1813' FWL**

**NE ¼ SW ¼ OF SECTION 32, T9S, R20E,  
S.L.B.&M. UTAH COUNTY, UTAH.**

**CONSULTING, LLC**  
371 Coffeen Avenue  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182



SCALE

## SURVEYOR'S CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

No. 362251  
KOLBY R.

REGISTERED LAND SURVEYOR  
REGISTRATION No. 362251  
STATE OF UTAH

**TIMBERLINE**

(435) 789-1365

**ENGINEERING & LAND SURVEYING, INC.**

38 WEST 100 NORTH - VERNAL, UTAH 84078

DATE SURVEYED: 11-12-08	SURVEYED BY: M.S.B.	SHEET <b>1</b> OF 9
DATE DRAWN: 11-13-08	DRAWN BY: E.M.S.	
SCALE: 1" = 1000'	Date Last Revised:	

**NBU 920-32K  
NESW Sec. 32, T9S R20E  
UINTAH COUNTY, UTAH  
ML-22140**

**ONSHORE ORDER NO. 1**

***DRILLING PROGRAM***

1. – 2. **Estimated Tops of Important Geologic Markers:**  
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

<u>Formation</u>	<u>Depth</u>	<u>Resource</u>
Uinta	0 – Surface	
Green River	1,612'	
Birds Nest	1,842'	Water
Mahogany	2,288'	Water
Wasatch	5,078'	Gas
Mesaverde	8,426'	Gas
MVU2	9,286'	Gas
MVL1	9,797'	Gas
TD	10,500'	

3. **Pressure Control Equipment** (Schematic Attached)

*Please see the Natural Buttes Unit Standard Operating Procedure (SOP).*

4. **Proposed Casing & Cementing Program:**

*Please see the Natural Buttes Unit SOP. See attached drilling diagram.*

5. **Drilling Fluids Program:**

*Please see the Natural Buttes Unit SOP.*

6. **Evaluation Program:**

*Please see the Natural Buttes Unit SOP.*

7. **Abnormal Conditions:**

Maximum anticipated bottomhole pressure calculated at 10,500' TD, approximately equals 6,705 psi (calculated at 0.64 psi/foot).

Maximum anticipated surface pressure equals approximately 4,395 psi (bottomhole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot).

**8. Anticipated Starting Dates:**

*Drilling is planned to commence immediately upon approval of this application.*

**9. Variances:**

*Please see Natural Buttes Unit SOP Onshore Order #2 – Air Drilling Variance*

*Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2*

- *Blowout Prevention Equipment (BOPE) requirements;*
- *Mud program requirements; and*
- *Special drilling operation (surface equipment placement) requirements associated with air drilling.*

*This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.*

*The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.*

*More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.*

**Background**

*In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.*

*Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.*

*The air rig is then mobilized to drill the surface casing hole by drilling a 12-1/4 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 12-1/4 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 9-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.*



*KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.*

***Variance for BOPE Requirements***

*The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.*

***Variance for Mud Material Requirements***

*Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.*

***Variance for Special Drilling Operation (surface equipment placement) Requirements***

*Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.*

*Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.*

*Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.*

*Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.*

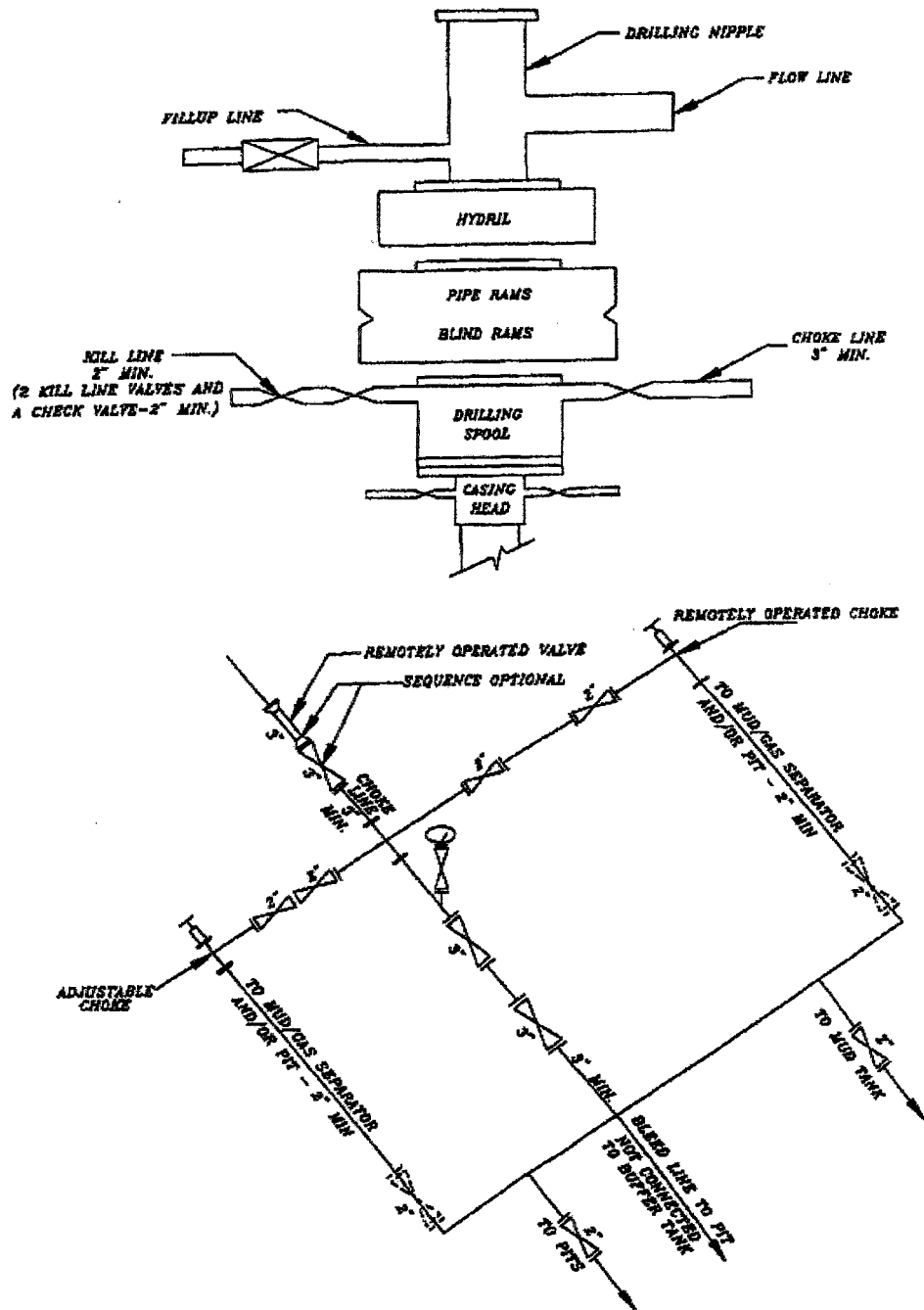
***Conclusion***

*The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.*

**10. Other Information:**

*Please see Natural Buttes Unit SOP.*

EXHIBIT A  
NBU 920-32K



SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK

**NBU 920-32K  
NESW Sec. 32 T9S R20E  
UINTAH COUNTY, UTAH  
ML-22140**

**ONSHORE ORDER NO. 1**

***MULTI-POINT SURFACE USE & OPERATIONS PLAN***

**1. Existing Roads:**

Refer to the attached location directions.

Refer to Topo Maps A and B for location of access roads within a 2-mile radius.

**2. Planned Access Roads:**

Approximately  $\pm 2,200'$  of new access road is proposed. Refer to Topo Map B.

*Existence of pipelines; maximum grade; turnouts; major cut and fills, culverts, or bridges; gates, cattle guards, fence cuts, or modifications to existing facilities were determined at the on-site.*

*Please see the Natural Buttes Unit Standard Operating Procedure (SOP).*

**3. Location of Existing Wells Within a 1-Mile Radius:**

Please refer to Topo Map C.

**4. Location of Existing & Proposed Facilities:**

*Please see the Natural Buttes Unit SOP.*

Refer to Topo Map D for the location of the proposed pipelines.

**Variances to Best Management Practices (BMPs) Requested:**

This exception to the BMP should be granted by the BLM Authorized Officer because indurated bedrock, such as sandstone, is at or within 2 feet of the surface and the soil has a poor history for successful rehabilitation.

All facilities will be painted within six months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded. The requested color is Shadow gray (2.5Y 6/2), a non-reflective earthtone.

**Interim Surface Reclamation Plan:**

This exception is requested due to the current twin and multi-well program. If determined that this well will not be a candidate for either twinning &/or multi-well the operator shall spread the topsoil pile on the location up to the rig anchor points. The location will be reshaped to the original contour to the extent possible. The operator will reseed the area using the BLM recommended seed mixture and reclamation methods.

5. **Location and Type of Water Supply:**

*Please see the Natural Buttes SOP.*

6. **Source of Construction Materials:**

*Please see the Natural Buttes SOP.*

7. **Methods of Handling Waste Materials:**

*Please see the Natural Buttes SOP.*

A plastic reinforced liner is to be used as discussed during on-site inspection. It will be a minimum of 20 mil thick and felt, with sufficient bedding used to cover any rocks. The liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash or scrap that could puncture the liner will be disposed of in the pit.

Any produced water from the proposed well will be contained in a water tank and will then be hauled by truck to one of the pre-approved disposal sites: RNI, Sec. 5, T9S, R22E, NBU #159, Sec. 35, T9S R21E, Ace Oilfield, Sec. 2, T6S, R20E, MC&MC, Sec. 12, T6S, R19E, Pipeline Facility Sec. 36, T9S, R20E, Goat Pasture Evaporation Pond SW/4 Sec. 16, T10S, R22E, Bonanza Evaporation Pond Sec. 2, T10S, R23E (*Request is in lieu of filing Form 3160-5, after initial production*).

8. **Ancillary Facilities:**

*Please see the Natural Buttes SOP.*

9. **Well Site Layout:** (See Location Layout Diagram)

The attached Location Layout Diagram describes drill pad cross-sections, cuts and fills, and locations of the mud tanks, reserve pit, flare pit, pipe racks, trailer parking, spoil dirt stockpile(s), and surface material stockpile(s).

Please see the attached diagram to describe rig orientation, parking areas, and access roads.

Location size may change prior to the drilling of the well due to the current rig availability. If the proposed location is not large enough to accommodate the drilling rig. The location will be re-surveyed and a form 3160-5 will be submitted.

10. **Plans for Reclamation of the Surface:**

*Please see the Natural Buttes SOP.*

Operator shall call the BIA for the seed mixture when the final reclamation occurs.

**11. Surface/Mineral Ownership:**

The well pad and access road are located on lands owned by:

Ute Indian Tribe  
P.O. Box 70  
Fort Duchesne, Utah 84026  
(435) 722-5141

The mineral ownership is listed below:

SITLA  
675 East 500 South, Suite 500  
Salt Lake City, UT 84102

**12. Stipulations/Notices/Mitigation:**

There are no stipulations or notices for this location.

**13. Other Information:**

A Class III archaeological survey has been performed and will be submitted upon receipt. Paleo report is attached.

**14. Lessee's or Operator's Representative & Certification:**

Raleen White  
Sr. Regulatory Analyst  
Kerr-McGee Oil & Gas Onshore LP  
P.O. Box 173779  
Denver, CO 80217-3779  
(720) 929-6666

Tommy Thompson  
Drilling Manager  
Kerr-McGee Oil & Gas Onshore LP  
P.O. Box 173779  
Denver, CO 80217-3779  
(720) 929-6724

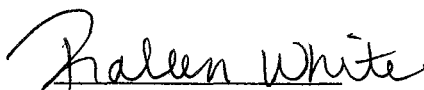
Certification: All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees.

Kerr-McGee Oil & Gas Onshore LP is considered to be the operator of the subject well. Kerr-McGee Oil & Gas Onshore LP agrees to be responsible under the terms and conditions of the lease for the operations conducted upon leased lands.

The Operator will be fully responsible for the actions of its subcontractors. A complete copy of the approved "Application for Permit to Drill" will be furnished to the field representative(s) to ensure compliance and shall be on location during all construction and drilling operations.

Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided by State Surety Bond #22013542.

I hereby certify that I, or persons under my supervision, have inspected the proposed drill site and access route, that I am familiar with the conditions that currently exist; that I have full knowledge of the State and Federal laws applicable to this operation; that the statements made in this plan are, to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

  
Raleen White

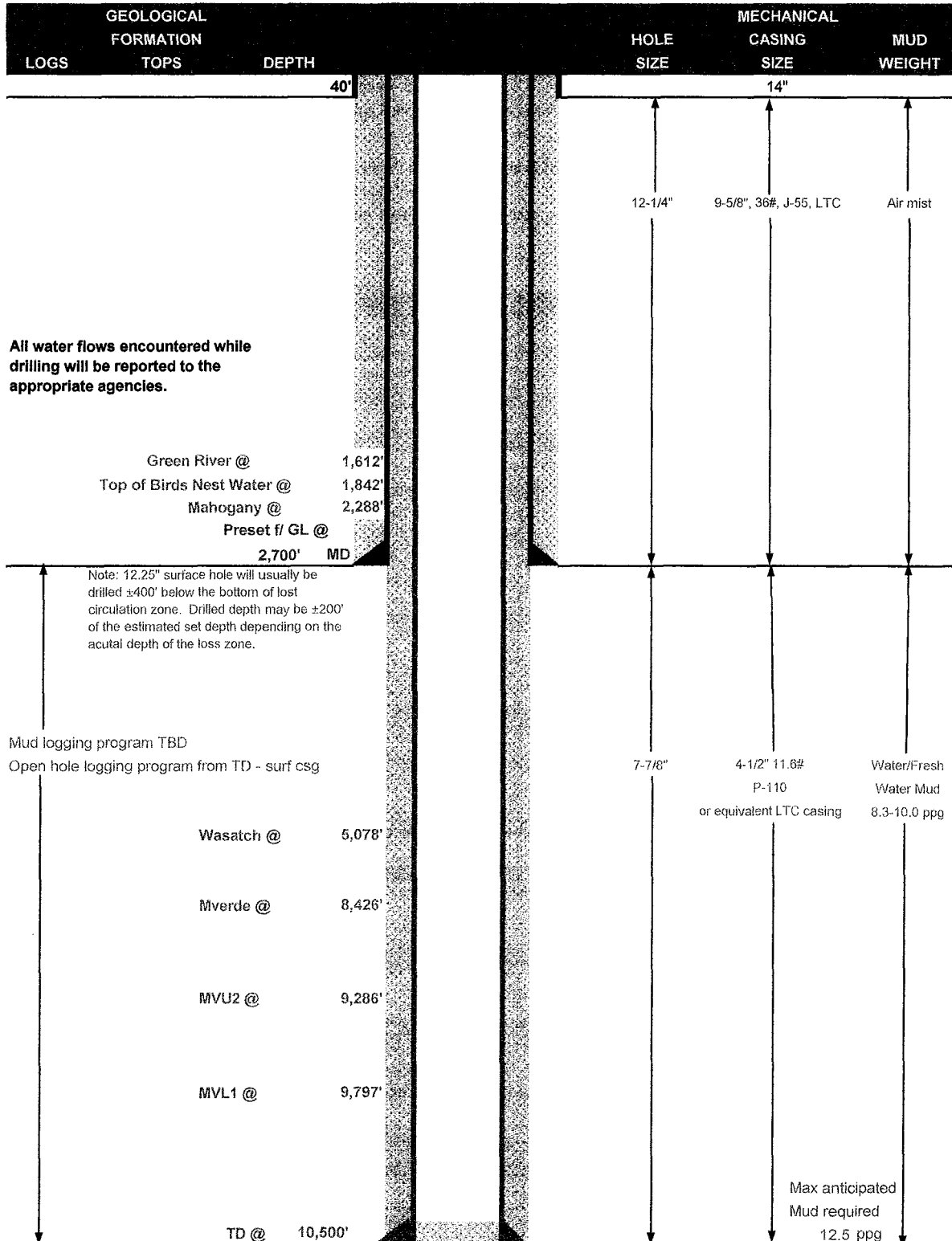
2/2/2009

Date

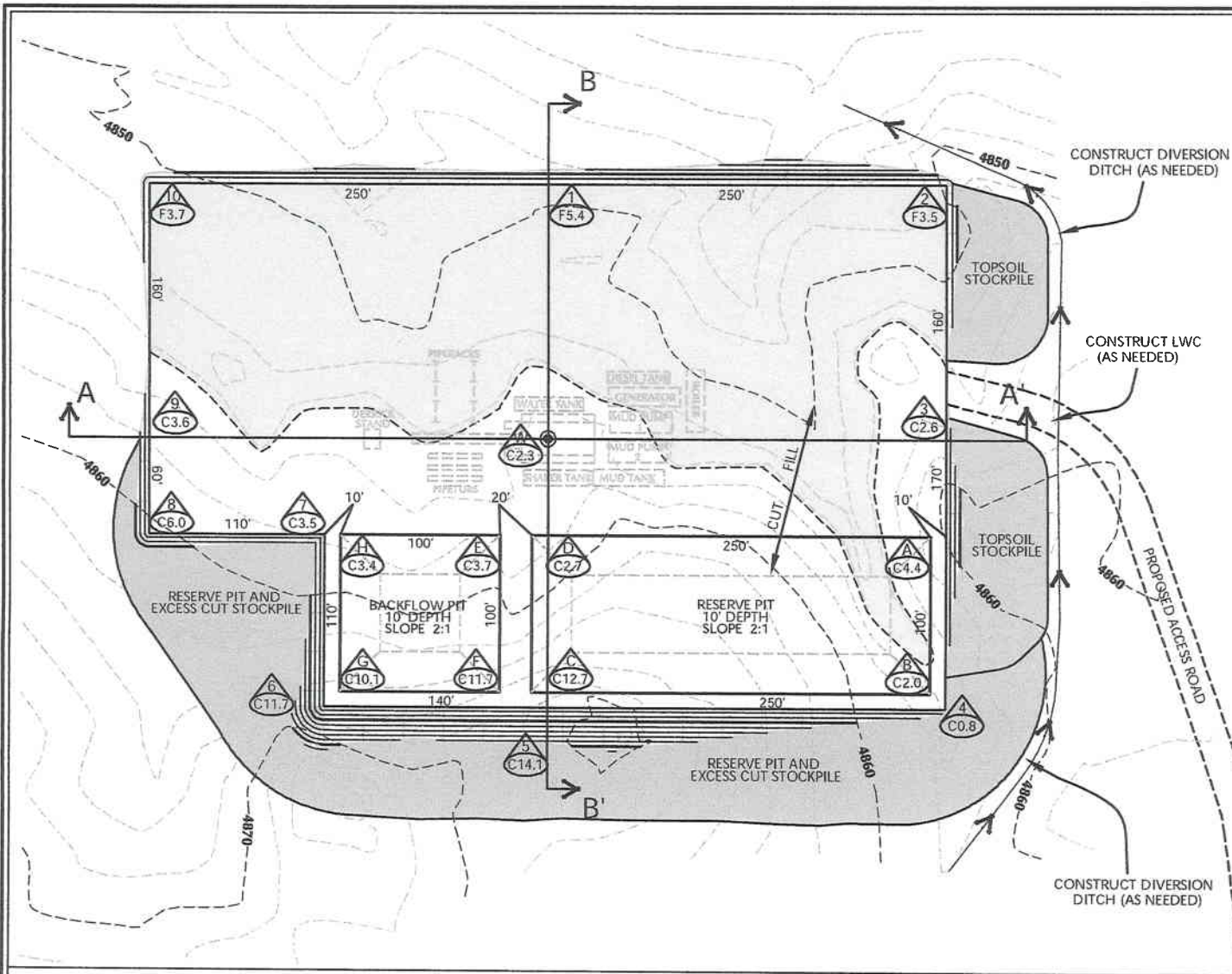


# KERR-McGEE OIL & GAS ONSHORE LP **DRILLING PROGRAM**

COMPANY NAME KERR-McGEE OIL & GAS ONSHORE LP DATE February 5, 2009  
 WELL NAME **NBU 920-32K** TD 10,500' MD/TVD  
 FIELD Natural Buttes COUNTY Uintah STATE Utah ELEVATION 4,854' GL KB 4,869'  
 SURFACE LOCATION NE/4 SW/4 2,095' FSL 1,813' FWL Sec 32 T 9S R 20E BHL Straight Hole  
 Latitude: 39.989450 Longitude: -109.692760 NAD 27  
 OBJECTIVE ZONE(S) Wasatch/Mesaverde  
 ADDITIONAL INFO Regulatory Agencies: UDOGM (MINERALS), BIA (SURFACE), UDOGM, Tri-County Health Dept.







## WELL PAD LEGEND

- WELL LOCATION
- - - EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)

## WELL PAD NBU 920-32K QUANTITIES

EXISTING GRADE @ LOC. STAKE = 4,856.6'  
 FINISHED GRADE ELEVATION = 4,854.3'  
 CUT SLOPES = 1.5:1  
 FILL SLOPES = 1.5:1

TOTAL CUT FOR WELL PAD = 14,106 C.Y.  
 TOTAL FILL FOR WELL PAD = 13,797 C.Y.  
 TOPSOIL @ 6" DEPTH = 3,149 C.Y.  
 EXCESS MATERIAL = 309 C.Y.  
 TOTAL DISTURBANCE = 3.90 ACRES  
 SHRINKAGE FACTOR = 1.10  
 SWELL FACTOR = 1.00  
 RESERVE PIT CAPACITY (2' OF FREEBOARD)  
 +/- 25,880 BARRELS  
 RESERVE PIT VOLUME  
 +/- 7,185 CY  
 BACKFLOW PIT CAPACITY (2' OF FREEBOARD)  
 +/- 8,780 BARRELS  
 BACKFLOW PIT VOLUME  
 +/- 2,520 CY

# KERR-MCGEE OIL & GAS ONSHORE L.P.

1099 18th Street - Denver, Colorado 80202



CONSULTING, LLC  
 371 Coffeen Avenue  
 Sheridan WY 82801  
 Phone 307-674-0609  
 Fax 307-674-0182

NBU 920-32K  
 WELL PAD - LOCATION LAYOUT  
 2095' FSL, 1813' FWL  
 NE1/4SW1/4, SECTION 32, T.9S., R.20E.  
 S.L.B.&M., UINTAH COUNTY, UTAH

Scale: 1"=100'

Date: 1/13/09

SHEET NO:

REVISED:

BY  
DATE

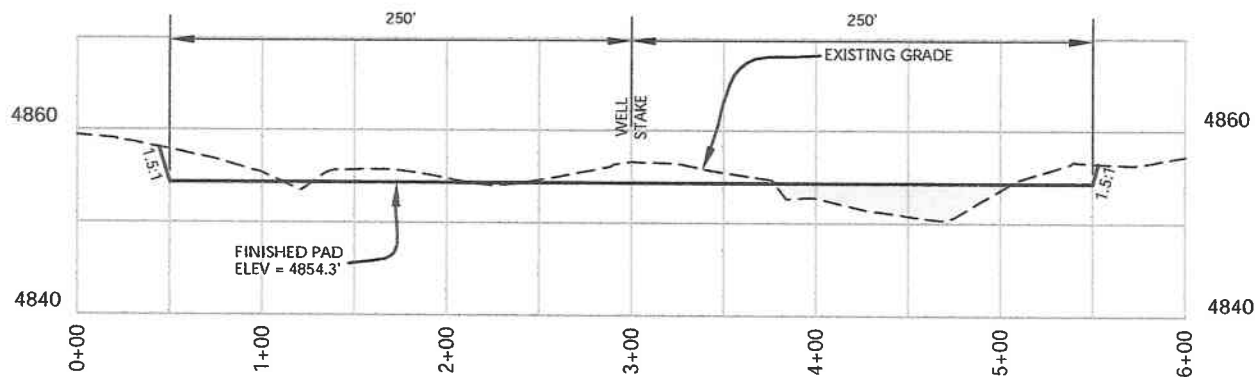
2

2 OF 9

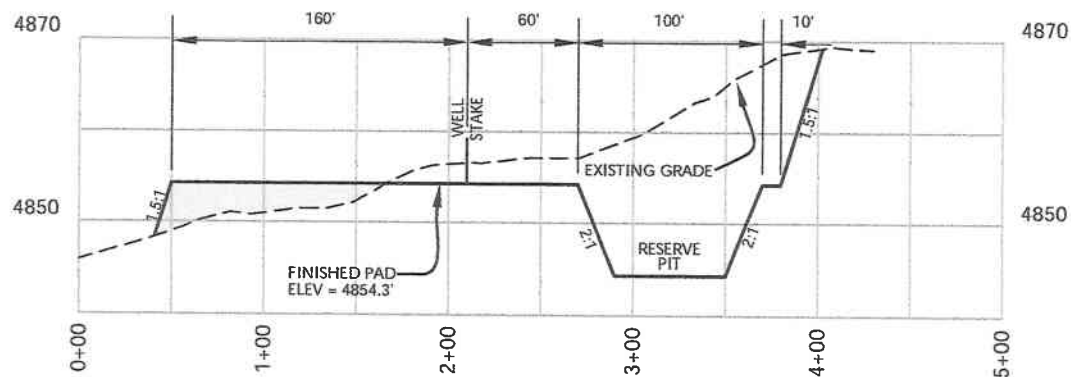
HORIZONTAL 0 50 100 1" = 100'  
 2' CONTOURS

**Timberline** (435) 789-1365  
 Engineering & Land Surveying, Inc.  
 38 WEST 100 NORTH VERNAL, UTAH 84078

K:\ANADARKO\2008\_31\_NBU\_TRIBAL\_2\DWGS\NBU\_SEC-29\32.33.dwg, 1/14/2009 4:57:41 PM, PDF-XChange for Acrobat Pro



**CROSS SECTION A-A'**



**CROSS SECTION B-B'**

NOTE: CROSS SECTION B-B' DEPICTS  
MAXIMUM RESERVE PIT DEPTH.

**KERR-MCGEE OIL & GAS  
ONSHORE L.P.**

1099 18th Street - Denver, Colorado 80202



**CONSULTING, LLC**  
371 Coffeen Avenue  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

**NBU 920-32K  
WELL PAD - CROSS SECTIONS**  
2095'FSL, 1813' FWL  
NE1/4SW1/4, SECTION 32, T.9S., R.20E.  
S.L.B.&M., UTAH COUNTY, UTAH

Scale: 1"=100'

Date: 1/13/09

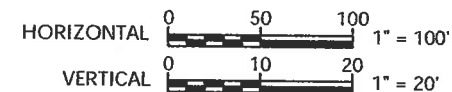
SHEET NO:

REVISED:

BY  
DATE

**3**

3 OF 9



**Timberline** (435) 789-1365  
**Engineering & Land Surveying, Inc.**  
38 WEST 100 NORTH VERNAL, UTAH 84078



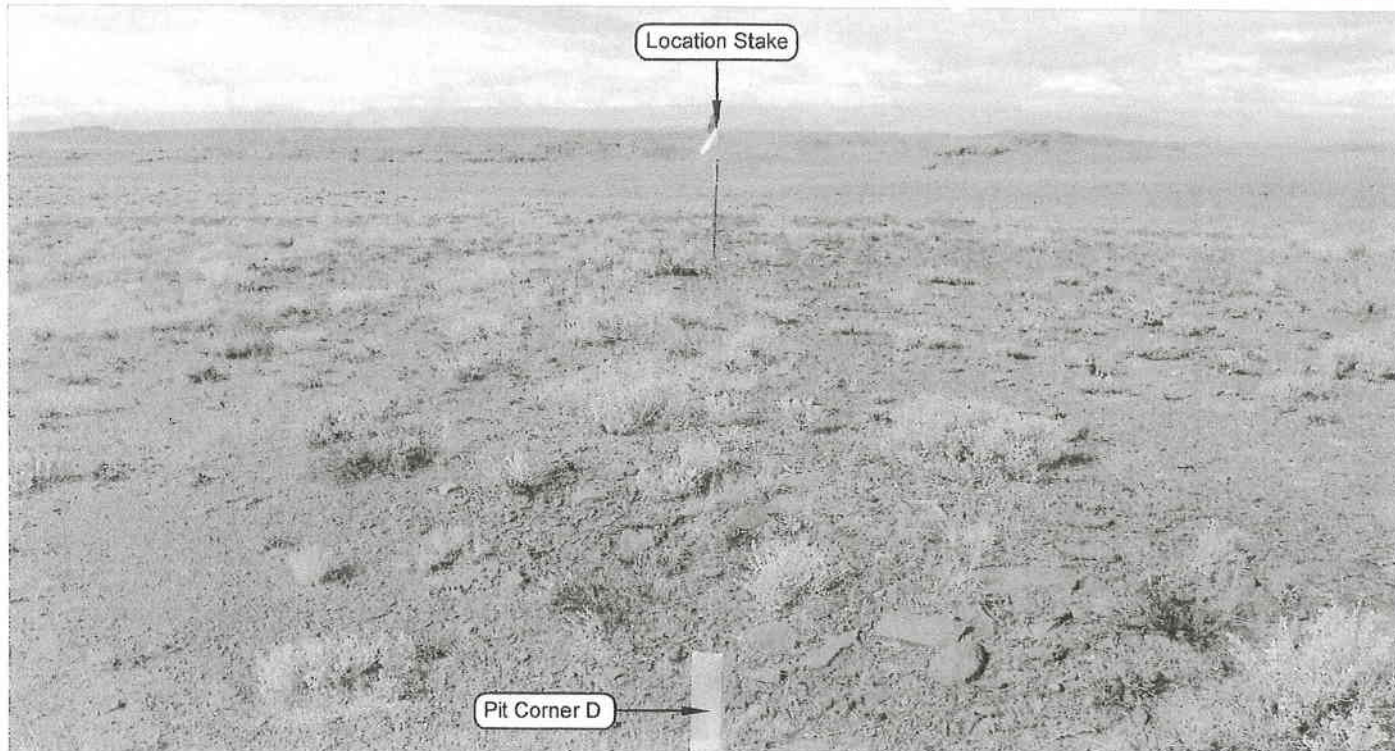


PHOTO VIEW: FROM PIT CORNER D TO LOCATION STAKE

CAMERA ANGLE: NORTHWESTERLY

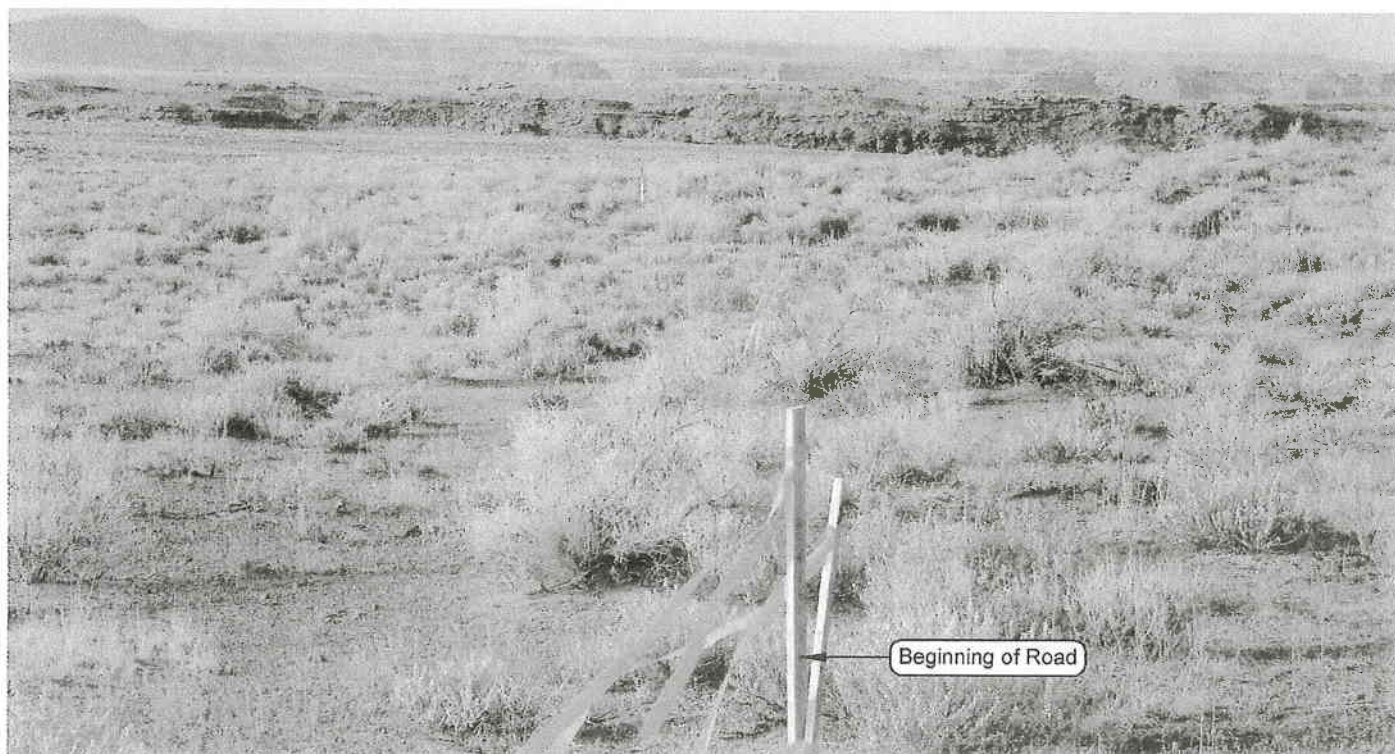
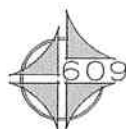


PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD

CAMERA ANGLE: NORTHWESTERLY

**Kerr-McGee**  
**Oil & Gas Onshore, LP**  
 1099 18th Street - Denver, Colorado 80202



CONSULTING, LLC  
 371 Coffeen Avenue  
 Sheridan WY 82801  
 Phone 307-674-0609  
 Fax 307-674-0182

NBU 920-32K  
 2095' FSL, 1813' FWL  
 NE  $\frac{1}{4}$  SW  $\frac{1}{4}$  OF SECTION 32, T9S, R20E,  
 S.L.B.&M. UINTAH COUNTY, UTAH.

#### LOCATION PHOTOS

TAKEN BY: M.S.B.

DRAWN BY: E.M.S.

DATE TAKEN: 11-12-08

DATE DRAWN: 11-13-08

REVISED:

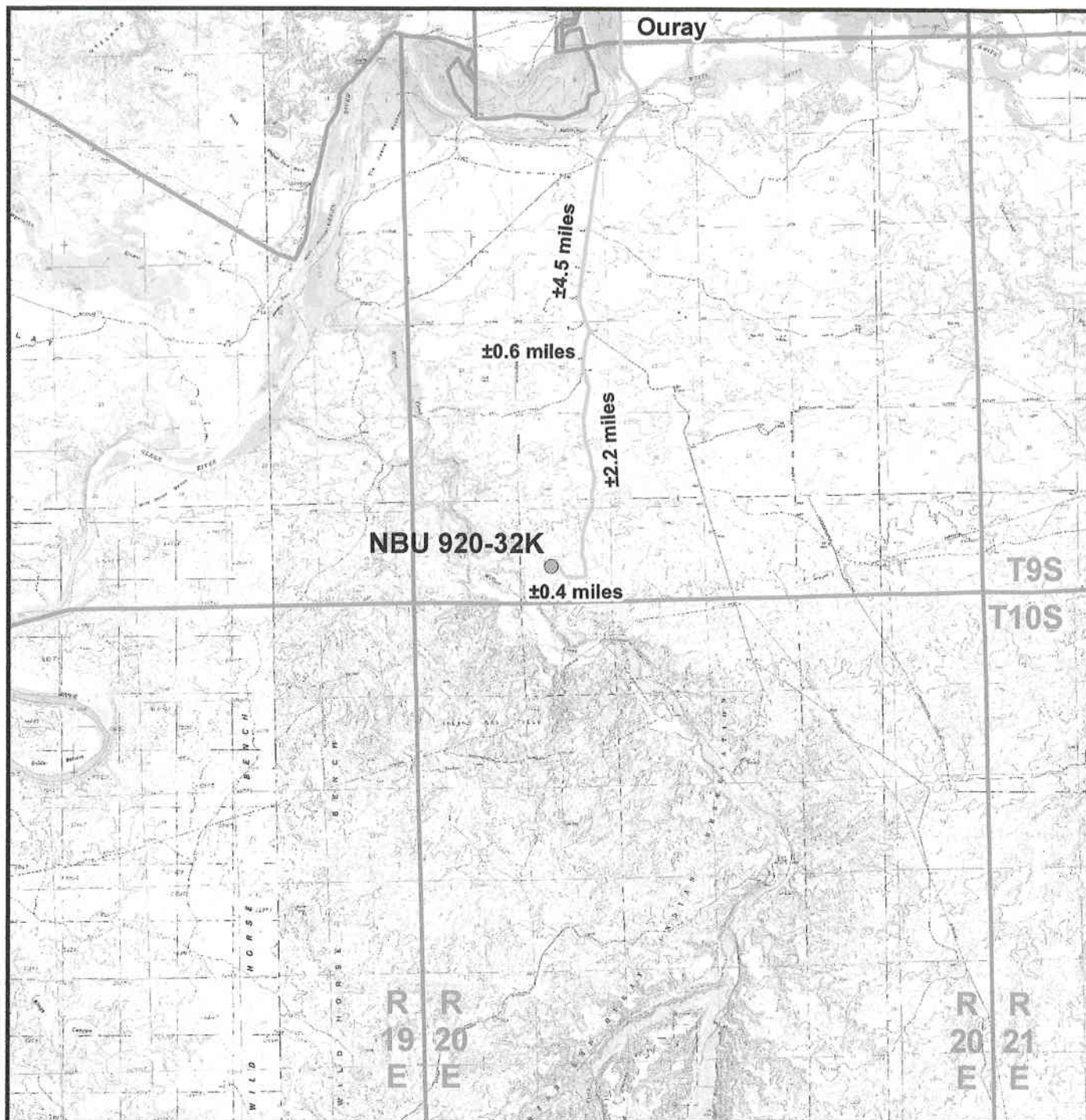
**Timberline**

Engineering & Land Surveying, Inc.  
 38 WEST 100 NORTH VERNAL, UTAH 84078

(435) 789-1365

SHEET  
**4**  
 OF 9





### Legend

- Proposed NBU 920-32K Well Location
- Access Route - Proposed

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

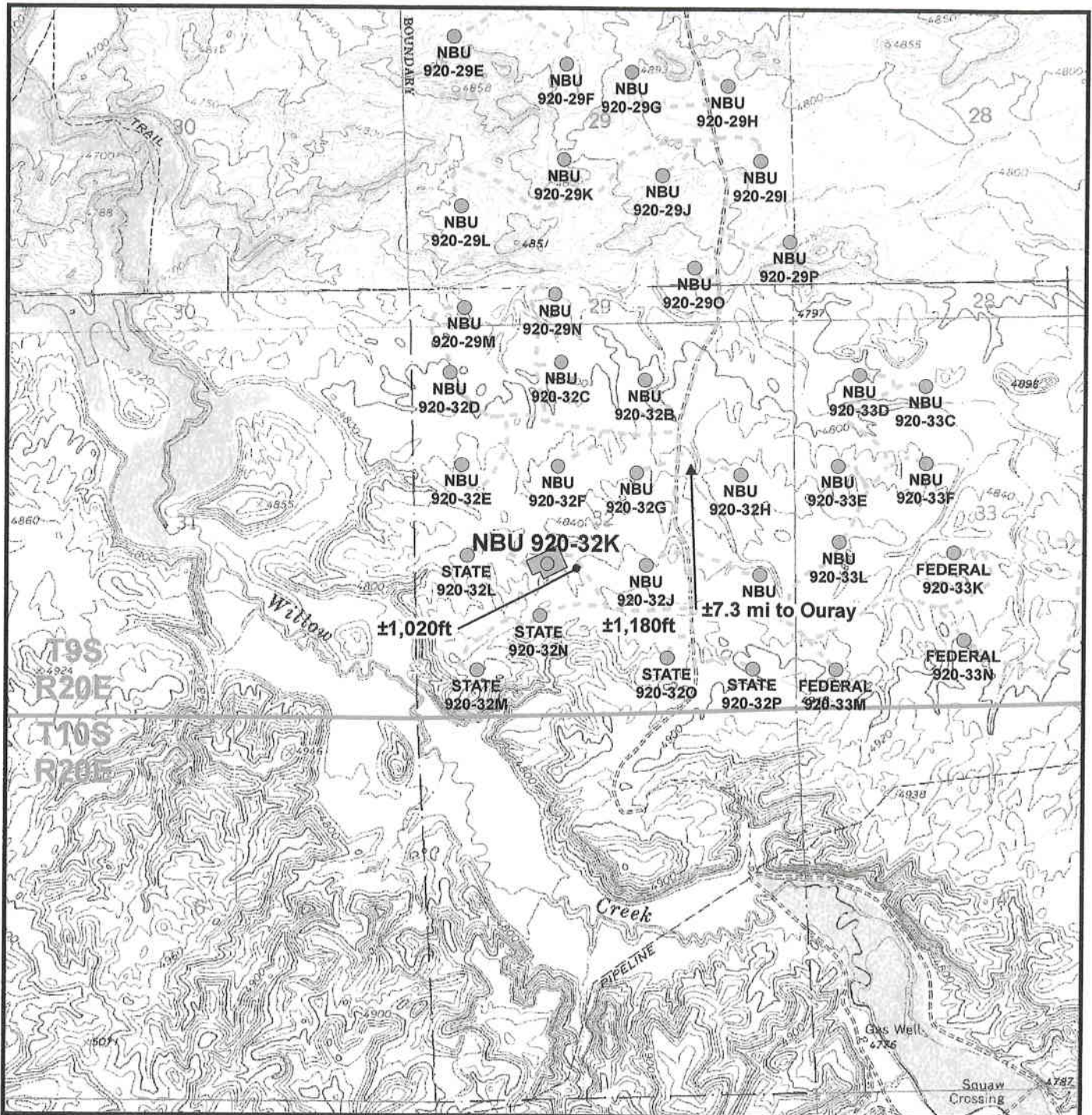
**NBU 920-32K**  
**Topo A**  
**2095' FSL, 1813' FWL**  
**NE¼ SW¼, Section 32, T9S, R20E**  
**S.L.B.&M., Uintah County, Utah**

  
**CONSULTING, LLC**  
371 Coffee Avenue  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1:100,000	NAD83 USP Central	Sheet No:
Drawn: JELO	Date: 18 Dec 2008	<b>5</b>
Revised:	Date:	5 of 9





### Legend

- Well - Proposed
- Well Pad
- - - Road - Proposed
- Road - Existing

Total Proposed Road Length:  $\pm 2,200$ ft

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

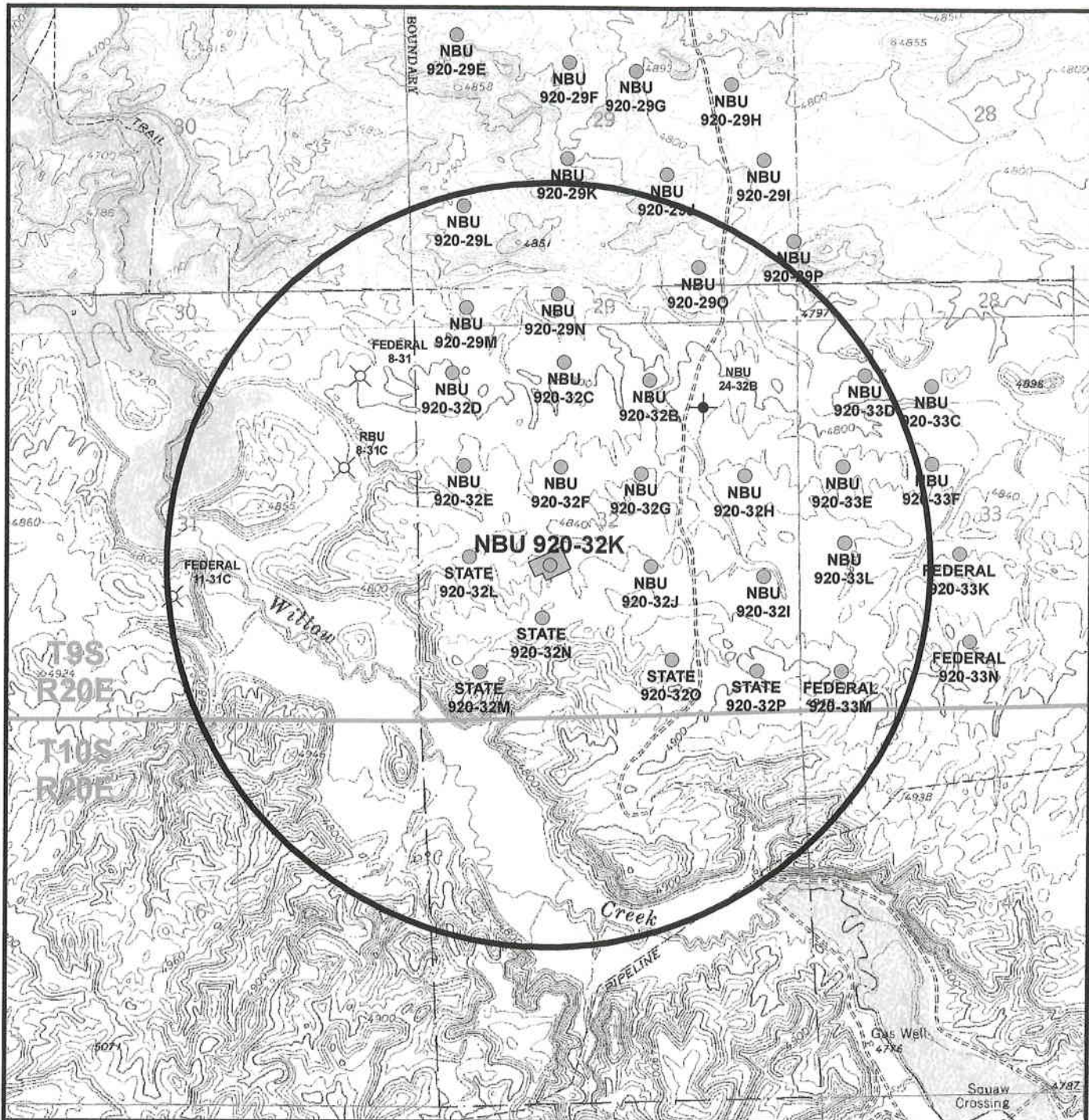
**NBU 920-32K**  
**Topo B**  
**2095' FSL, 1813' FWL**  
**NE $\frac{1}{4}$  SW $\frac{1}{4}$ , Section 32, T9S, R20E**  
**S.L.B.&M., Uintah County, Utah**

**CONSULTING, LLC**  
371 Coffeen Avenue  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:
Drawn: JELO	Date: 18 Dec 2008	<b>6</b>
Revised:	Date:	6 of 9





### Legend

- Well - Proposed
- Well - 1 Mile Radius
- Producing
- ⊗ Location Abandoned
- ⬮ Well Pad
- ▲ Approved permit (APD); not yet spudded
- ⊙ Spudded (Drilling commenced; Not yet complete)
- ⬮ Temporarily-Abandoned
- ⬮ Plugged and Abandoned
- ⬮ Shut-In

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

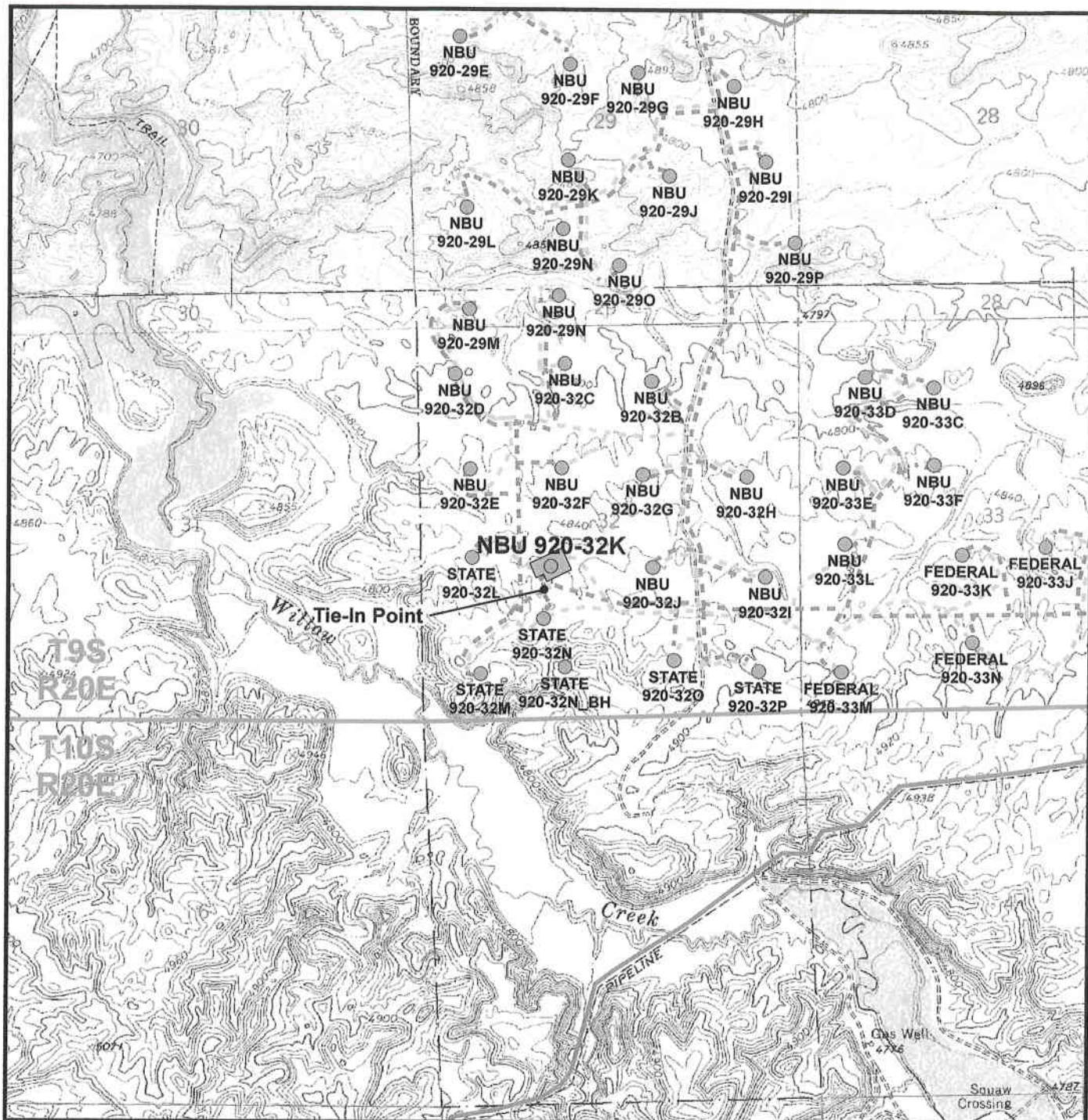
**NBU 920-32K**  
**Topo C**  
**2095' FSL, 1813' FWL**  
**NE¼ SW¼, Section 32, T9S, R20E**  
**S.L.B.&M., Uintah County, Utah**

**CONSULTING, LLC**  
371 Coffeen Avenue  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2000ft NAD83 USP Central Sheet No:  
Drawn: JELO Date: 18 Dec 2008  
Revised: Date: **7** 7 of 9





# Legend

- Well - Proposed
- Well Pad
- Pipeline - Proposed
- Road - Proposed
- Pipeline - Existing
- Road - Existing

Proposed Pipeline Length From Tie-In Point To Edge Of Pad:  $\pm 260$ ft  
Proposed Pipeline Length Around Pad:  $\pm 660$ ft

Kerr-McGee Oil & Gas Onshore, LP  
1099 18th Street, Denver, Colorado 80202

NBU 920-32K  
Topo D  
2095' FSL, 1813' FWL  
NE $\frac{1}{4}$  SW $\frac{1}{4}$ , Section 32, T9S, R20E  
S.L.B.&M., Uintah County, Utah

609  
CONSULTING, LLC  
371 Coffeen Avenue  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2000ft  
NAD83 USP Central  
Drawn: JELo  
Revised: JELo  
Date: 18 Dec 2008

Sheet No:

8

8 of 9

**Kerr-McGee Oil & Gas Onshore, LP**  
**NBU 920-32K**  
**Section 32, T9S, R20E, S.L.B.&M.**

PROCEED IN A WESTERLY DIRECTION FROM VERNAL, UTAH ALONG U.S. HIGHWAY 40 APPROXIMATELY 13.9 MILES TO THE JUNCTION OF STATE HIGHWAY 88. EXIT LEFT AND PROCEED IN A SOUTHERLY DIRECTION ALONG STATE HIGHWAY 88 APPROXIMATELY 16.8 MILES TO OURAY, UTAH. FROM OURAY, PROCEED IN A SOUTHERLY DIRECTION ALONG THE SEEP RIDGE ROAD (COUNTY B ROAD 2810) APPROXIMATELY 4.5 MILES TO THE INTERSECTION OF THE WILD HORSE BENCH ROAD (A CLASS D COUNTY ROAD). EXIT RIGHT AND PROCEED IN A SOUTHERLY DIRECTION ALONG THE WILD HORSE BENCH ROAD APPROXIMATELY 0.6 MILES TO THE INTERSECTION OF THE WILLOW CREEK ROAD (A CLASS D COUNTY ROAD). EXIT LEFT AND PROCEED IN A SOUTHERLY DIRECTION ALONG THE WILLOW CREEK ROAD APPROXIMATELY 2.2 MILES TO THE PROPOSED ACCESS ROAD. FOLLOW ROAD FLAGS IN A WESTERLY, THEN NORTHWESTERLY DIRECTION APPROXIMATELY 2,200 FEET TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM VERNAL, UTAH TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 38.4 MILES IN A SOUTHERLY DIRECTION.



## **Paleontological Reconnaissance Survey Report**

---

**Survey of Kerr McGee's Proposed Gathering Pipeline, Well Pads,  
Access Roads, and Pipelines for "NBU #920-29M & N",  
"NBU #920-32C, E, F, & K", & "State #920-32L,  
M, N, & O" (Sec. 29 & 32, T 9 S, R 20 E)**

Big Pack Mtn NW  
Topographic Quadrangle  
Uintah County, Utah

December 18, 2008

Prepared by Stephen D. Sandau  
Paleontologist for  
Intermountain Paleo-Consulting  
P. O. Box 1125  
Vernal, Utah 84078

## INTRODUCTION

At the request of Raleen White of Kerr McGee Onshore LP and authorized by Bruce Pargeets of the Ute Indian Tribe and by Larry Love, Director of the Ute Indian Tribe's Energy and Minerals Department, a paleontological reconnaissance survey of Kerr McGee's proposed gathering pipeline, well pads, access roads, and pipelines for "NBU #920-29M & N", "NBU #920-32C, E, F, & K", & "State #920-32L, M, N, & O" (Sec. 29 & 32, T 9 S, R 20 E) was conducted by Daniel Burk on December 9, 2008. The survey was conducted under the Ute Indian Tribe Business License FY 2009, #A09-1308 and the accompanying Access Permit (effective 10/15/2008 through 3/31/2009). This survey to locate, identify and evaluate paleontological resources was done to meet requirements of the National Environmental Policy Act of 1969 and other State and Federal laws and regulations that protect paleontological resources.

## FEDERAL AND STATE REQUIREMENTS

As mandated by the Federal and State government, paleontologically sensitive geologic formations on State lands that are considered for exchange or may be impacted due to ground disturbance require paleontological evaluation. This requirement complies with:

- 1) The National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et. Seq., P.L. 91-190);
- 2) The Federal Land Policy and Management Act (FLPMA) of 1976 (90 Stat. 2743, 43 U.S.C. § 1701-1785, et. Seq., P.L. 94-579) and
- 3) The National Historic Preservation Act. 16 U.S.C. § 470-1, P.L. 102-575 in conjunction with 42 U.S.C. § 5320

The new Potential Fossil Yield Classification (PFYC) System (October, 2007) replaces the Condition Classification System from Handbook H-8270-1. Geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential.

- **Class 1 – Very Low.** Geologic units (igneous, metamorphic, or Precambrian) not likely to contain recognizable fossil remains.
- **Class 2 – Low.** Sedimentary geologic units not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils. (Including modern eolian, fluvial and colluvial deposits etc...)
- **Class 3 – Moderate or Unknown.** Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.
  - **Class 3a – Moderate Potential.** The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.
  - **Class 3b – Unknown Potential.** Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but

little information about the paleontological resources of the unit or the area is known.

- **Class 4 – High.** Geologic units containing a high occurrence of vertebrate fossils or scientifically significant invertebrate or plant fossils, but may vary in abundance and predictability.
  - **Class 4a** – Outcrop areas with high potential are extensive (greater than two acres) and paleontological resources may be susceptible to adverse impacts from surface disturbing actions.
  - **Class 4b** – Areas underlain by geologic units with high potential but have lowered risks of disturbance due to moderating circumstances such as a protective layer of soil or alluvial material; or outcrop areas are smaller than two contiguous acres.
- **Class 5 – Very High.** Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils.
  - **Class 5a** - Outcrop areas with very high potential are extensive (greater than two acres) and paleontological resources may be susceptible to adverse impacts from surface disturbing actions.
  - **Class 5b** - Areas underlain by geologic units with very high potential but have lowered risks of disturbance due to moderating circumstances such as a protective layer of soil or alluvial material; or outcrop areas are smaller than two contiguous acres.

It should be noted that many fossils, though common and unimpressive in and of themselves, can be important paleo-environmental, depositional, and chronostratigraphic indicators.

## LOCATION

Kerr McGee's proposed gathering pipeline, well pads, access roads, and pipelines for "NBU #920-29M & N", "NBU #920-32C, E, F, & K", & "State #920-32L, M, N, & O" (Sec. 29 & 32, T 9 S, R 20 E) are located on Ute Indian Reservation land less than a mile east of Willow Creek, approximately 5-6 miles south of the Green River, and some 7-8 miles south of Ouray, Utah. The project area can be found on the Big Pack Mtn NW 7.5 minute U. S. Geological Survey Quadrangle Map, Uintah County, Utah.

## PREVIOUS WORK

The basins of western North America have long produced some of the richest fossil collections in the world. Early Cenozoic sediments are especially well represented throughout the western interior. Paleontologists started field work in Utah's Uinta Basin as early as 1870 (Betts, 1871; Marsh, 1871, 1875a, 1875b). The Uinta Basin is located in the northeastern corner of Utah and covers approximately 31,000 sq. km (12,000 sq. miles) ranging in elevation from 1,465 to 2,130 m (4,800 to 7,000 ft) (Marsell, 1964; Hamblin et al., 1987). Middle to late Eocene time marked a period of dramatic change in the climate, flora, (Stucky, 1992) and fauna (Black and Dawson, 1966) of North America.

## GEOLOGICAL AND PALEONTOLOGICAL OVERVIEW

Early in the geologic history of Utah, some 1,000 to 600 Ma, an east-west trending basin developed creating accommodation for 25,000 feet of siliclastics. Uplift of that filled-basin during the early Cenozoic formed the Uinta Mountains (Rasmussen et al., 1999). With the rise of the Uinta Mountains the asymmetrical synclinal Uinta Basin is thought to have formed through the effects of down warping in connection with the uplift. Throughout the Paleozoic and Mesozoic deposition fluctuated between marine and non-marine environments laying down a thick succession of sediments in the area now occupied by the Uinta Basin. Portions of these beds crop out on the margins of the basin due to tectonic events during the late Mesozoic.

Early Tertiary Uinta Basin sediments were deposited in alternating lacustrine and fluvial environments. Large shallow lakes periodically covered most of the basin and surrounding areas during early to mid Eocene time (Abbott, 1957). These lacustrine sediments show up in the western part of the basin, dipping 2-3 degrees to the northeast and are lost in the subsurface on the east side. The increase of cross-bedded, coarse-grained sandstone and conglomerates preserved in paleo-channels indicates a transition to a fluvial environment toward the end of the epoch.

Four Eocene formations are recognized in the Uinta Basin: the Wasatch, Green River, Uinta and Duchesne River, respectively (Wood, 1941). The Uinta Formation is subdivided into two lithostratigraphic units namely: the Wagonhound Member (Wood, 1934), formerly known as Uinta A and B (Osborn, 1895, 1929) and the Myton Member previously regarded as the Uinta C.

Within the Uinta Basin in northeast Utah, the Uinta Formation in the western part of the basin is composed primarily of lacustrine sediments inter-fingering with over-bank deposits of silt, and mudstone and westward flowing channel sands and fluvial clays, muds, and sands in the east (Bryant et al, 1990; Ryder et al, 1976). Stratigraphic work done by early geologists and paleontologists within the Uinta Formation focused on the definition of rock units and attempted to define a distinction between early and late Uintan faunas (Riggs, 1912; Peterson and Kay, 1931; Kay 1934). More recent work focused on magnetostratigraphy, radioscopic chronology, and continental biostratigraphy (Flynn, 1986; Prothero, 1996). Well-known for its fossiliferous nature and distinctive mammalian fauna of mid-Eocene Age, the Uinta Formation is the type formation for the Uintan Land Mammal Age (Wood et al, 1941).

The Duchesne River Formation of the Uinta Basin in northeastern Utah is composed of a succession of fluvial and flood plain deposits composed of mud, silt, and sandstone. The source area for these late Eocene deposits is from the Uinta Mountains indicated by paleocurrent data (Anderson and Picard, 1972). In Peterson's (1931c) paper, the name "Duchesne Formation" was applied to the formation and it was later changed to the "Duchesne River Formation" by Kay (1934). The formation is divided up into four members: the Brennan Basin, Dry Gulch Creek, LaPoint, and Starr Flat (Anderson and Picard, 1972). Debates concerning the Duchesne River Formation, as to whether its age was late Eocene or early Oligocene, have surfaced throughout the literature of the last century (Wood et al., 1941; Scott 1945). Recent paleo-magnetostratigraphic work (Prothero, 1996) shows that the Duchesne River Formation is late Eocene in time.

## **FIELD METHODS**

In order to determine if the proposed project area contained any paleontological resources, a reconnaissance survey was performed. An on-site observation of the proposed areas undergoing surficial disturbance is necessary because judgments made from topographic maps alone are often unreliable. Areas of low relief have potential to be erosional surfaces with the possibility of bearing fossil materials rather than surfaces covered by unconsolidated sediment or soils.

When found within the proposed construction areas, outcrops and erosional surfaces were checked to determine if fossils were present and to assess needs. Careful effort is made during surveys to identify and evaluate significant fossil materials or fossil horizons when they are found. Microvertebrates, although rare, are occasionally found in anthills or upon erosional surfaces and are of particular importance.

## **PROJECT AREA**

The project area is situated in the Wagonhound Member (Uinta A & B) of the Uinta Formation. The following list provides a description of the individual wells and their associated pipelines and access roads.

### **NBU #920-29M**

The proposed access road and pipeline begin in the NW/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E at the north edge of the proposed well pad "NBU #920-32D" and travel approximately 800 feet north and east where they enter the well pad in the SW/SW quarter-quarter section of Sec. 29 (Figure 1). The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**NBU #920-29N**

The proposed access road and pipeline begin in the NE/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E near the well pad "NBU #920-32C" and travel north for approximately 1000 feet where they enter the well pad in the SE/SW quarter-quarter section of Sec. 29 (Figure 1). The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**NBU #920-32C**

The proposed pipeline begins at the end of the gathering pipeline in the center of the NW quarter section of Sec. 32, T 9 S, R 20 E and travels east for approximately 500 feet where it turns north and parallels the access road (Figure 1). The pipeline and access road travel north for approximately 700 feet where they enter the well pad in the NE/NW quarter-quarter section of Sec. 32. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds. No fossils were found.

**NBU #920-32E**

The proposed access road, pipeline, and well pad are located in the SW/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins along the access road for "NBU #920-32D" and travels south and west to where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels west for approximately 600 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Scattered isolated turtle shell and bone fragments were found on the pad and along the access road.

**NBU #920-32F**

The proposed access road, pipeline, and well pad are located in the SE/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins along the access road for "NBU #920-32D" and travels southwest for approximately 500 feet where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels east approximately 500 feet where it enters the well pad. The proposed pipeline, access road, and well pad are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from fine to medium-grained maroon sandstone beds (2-3 m thick) which outcrop in the area. Trace fossil burrows were observed near the pipeline tie-in, just west of the pad.

**NBU #920-32K**

The proposed access road, pipeline, and well pad are located in the NE/SW quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins off the proposed access road for "State #920- 32N" and travels northwest approximately 800 feet where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels northwest for approximately 300 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**State #920-32L**

The proposed access road begins at the northwest corner of the well pad "NBU #920-32K" in the NE/SW quarter-quarter of Sec. 32, T 9 S, R 20 S and travels northwest approximately 600 feet where it enters the well pad in the NW/SW quarter-quarter section of Sec. 32 (Figure 1). The proposed pipeline begins along the access road where it intersects the gathering pipeline and parallels the access road to the well pad. The proposed well pad, access road and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**State #920-32M**

The proposed access road begins at the western edge of the well pad "NBU #920-32N" in the NE/SW quarter-quarter section of Sec. 32, T 9 S, R 20 E and travels southwest approximately 1000 feet where it enters the well pad in the SW/SW quarter-quarter section of Sec. 32 (Figure 1). The proposed pipeline begins at the gathering pipeline in the center of the SW quarter section Sec. 32 and travels southwest where it parallels the access road until it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds. No fossils were found.

**State #920-32N**

The proposed access road begins at an existing two-track in the SW/SE quarter-quarter section of Sec. 32, T 9 S, R 20 E and travels west approximately 2000 feet where it enters the well pad in the SE/SW quarter-quarter section of Sec. 32 (Figure 1). The proposed pipeline begins at the gathering pipeline in the SE/SW quarter-quarter section of Sec. 32 and travels southeast for approximately 100 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement.

The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

#### **State #920-320**

The proposed access road, pipeline, and well pad are located in the SW/SE quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins off an existing road and travels west approximately 100 feet where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels south approximately 300 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

#### **Gathering Pipeline**

The proposed gathering pipeline begins in the center of the NW quarter section of Sec. 32, T 9 S, R 20 E and travels south for approximately 0.5 miles, turns east and travels for approximately 0.5 miles, and turns north and travels for approximately 600 feet where it ends in the NW/SE quarter-quarter section of Sec. 32 (Figure 1). The proposed gathering pipeline is located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop in the area. No fossils were found.

### **SURVEY RESULTS**

<b>PROJECT</b>	<b>GEOLOGY</b>	<b>PALEONTOLOGY</b>
<b>"NBU #920-29M"</b> (Sec. 29, T 9 S, R 20 E)	The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.	No fossils were found. <b>Class 3a</b>
<b>"NBU #920-29N"</b> (Sec. 29, T 9 S, R 20 E)	The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.	No fossils were found. <b>Class 3a</b>



<p><b>"NBU #920-32C"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>"NBU #920-32E"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>Scattered isolated turtle shell and bone fragments were found on the pad and along the access road. <b>Class 3a</b></p>
<p><b>"NBU #920-32F"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed pipeline begins at the gathering pipeline and travels east approximately 500 feet where it enters the well pad. The proposed pipeline, access road, and well pad are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from fine to medium-grained maroon sandstone beds (2-3 m thick) which outcrop in the area.</p>	<p>Trace fossil burrows were observed near the pipeline tie-in, just west of the pad. <b>Class 3a</b></p>
<p><b>"NBU #920-32K"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>"State #920-32L"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>

<p><b>"State #920-32M"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>"State #920-32N"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>"State #920-32O"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>"Gathering Pipeline"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed gathering pipeline is located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop in the area.</p>	<p>No fossils were found. <b>Class 3a</b></p>

## RECOMMENDATIONS

A reconnaissance survey was conducted for Kerr McGee's proposed gathering pipeline, well pads, access roads, and pipelines for "NBU #920-29M & N", "NBU #920-32C, F, E, & K", & "State #920-32L, N, M, & O" (Sec. 29 & 32, T 9 S, R 20 E). The well pads and the associated access roads and pipelines covered in this report showed little to no signs of vertebrate fossils. Therefore, we recommend that no paleontological restrictions should be placed on the development of the projects included in this report.

Buried pipeline will encounter Uinta formational sediments along most of the staked pipeline corridors yet indications from surface fossils predict that little if any vertebrate fossils will be disturbed.

Nevertheless, if any vertebrate fossil(s) are found during construction within the project area, recommendations are that a paleontologist is immediately notified in order to collect fossil materials in danger of being destroyed. Any vertebrate fossils found should be carefully moved outside of the construction areas to be checked by a permitted paleontologist.

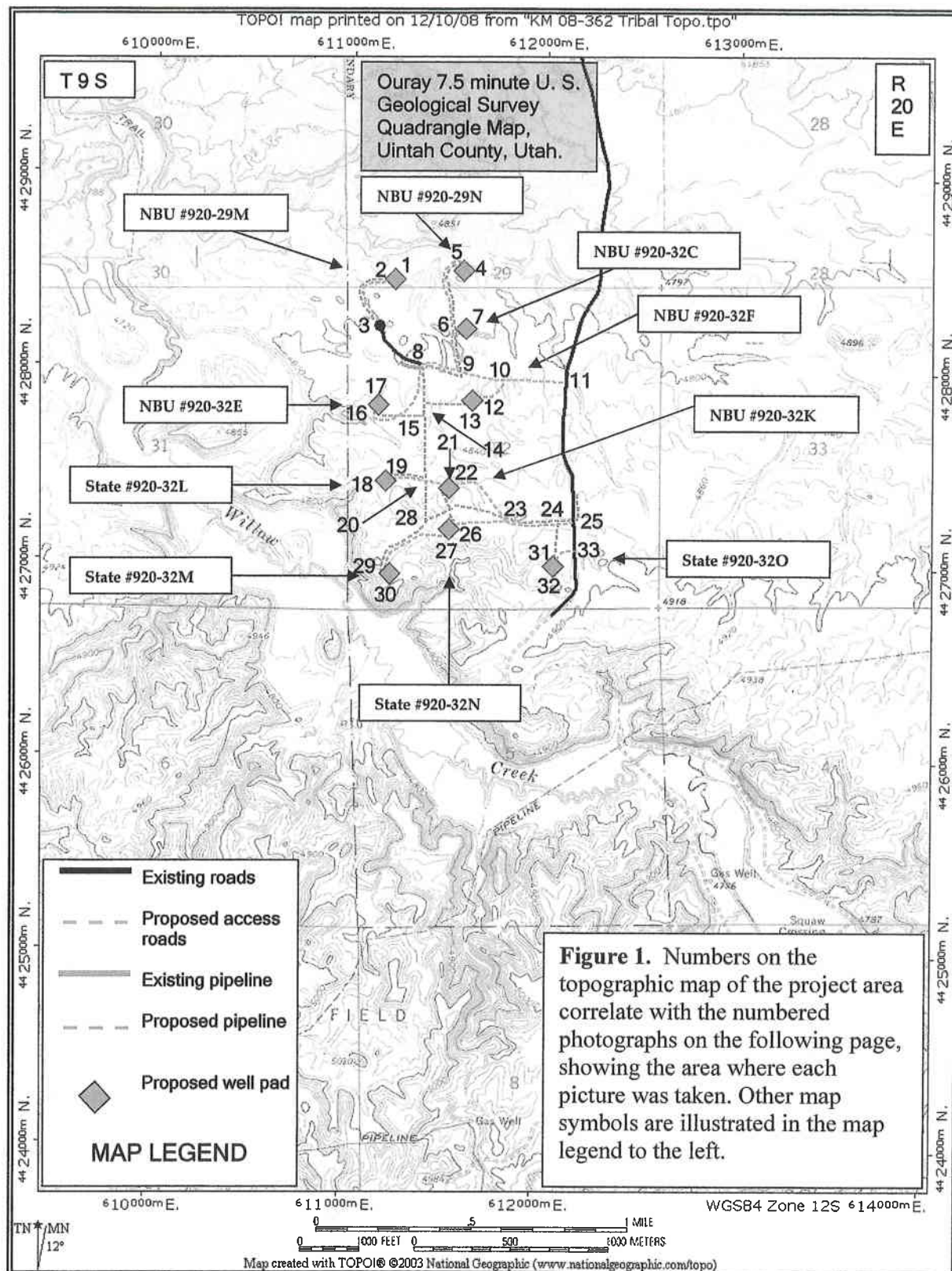




Figure 1. *continued...*

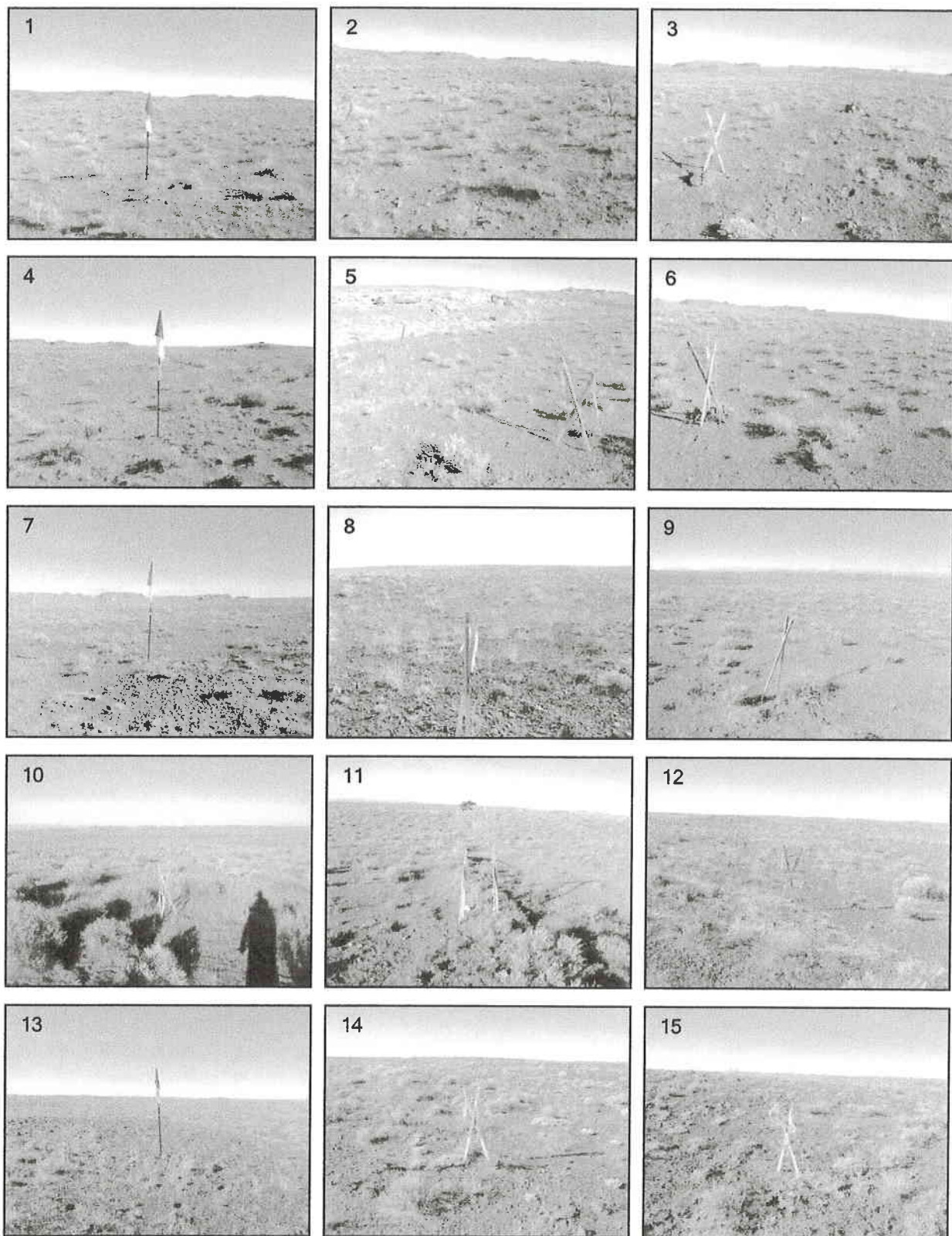
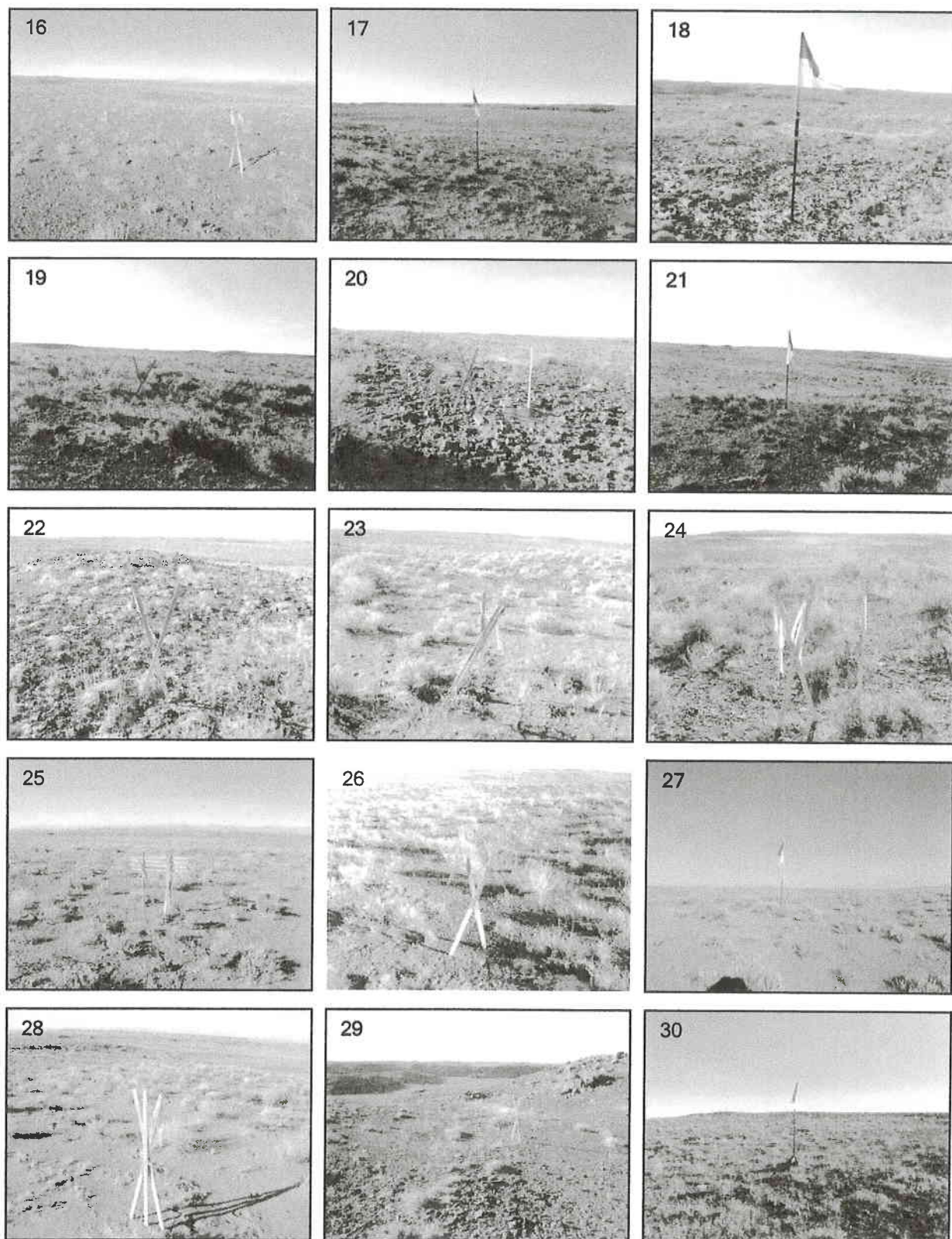
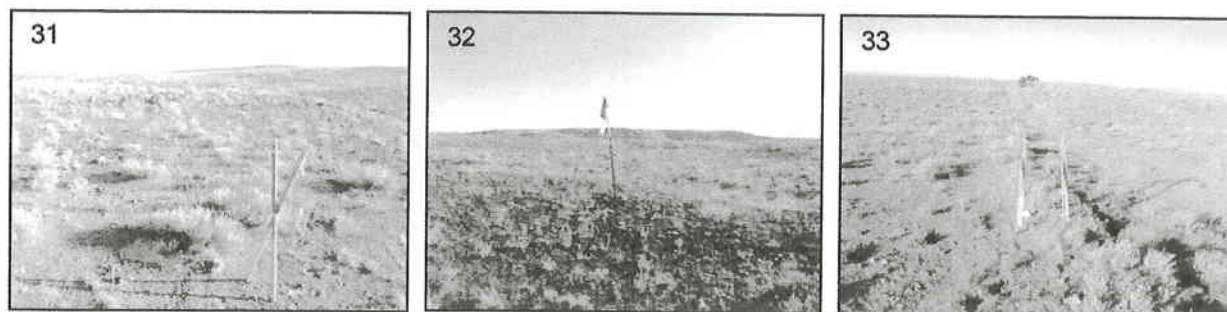


Figure 1. *continued...*

**Figure 1.** *continued...*





## REFERENCES CITED

- Abbott, W., 1957, Tertiary of the Uinta Basin: Intermountain Assoc. Petroleum Geologists Guidebook, Eighth Ann. Field Conf., p. 102-109.
- Anderson, D. W., and Picard, M. D., 1972, Stratigraphy of the Duchesne River Formation (Eocene-Oligocene?), northern Uinta Basin, northeastern Utah: Utah Geological and Mineralogical Survey Bulletin 97, p. 1-28.
- Betts, C. W., 1871, The Yale College expedition of 1870: Harper's New Monthly Magazine, v. 43, p. 663-671.
- Black, C. C. and Dawson, M. R., 1966, A Review of Late Eocene Mammalian Faunas from North America: American Journal of Science, v. 264, p. 321-349.
- Bryant, B., Naeser C. W., Marvin R. F., Mahnert H. H., 1989, Cretaceous and Paleogene Sedimentary Rocks and Isotopic Ages of Paleogene Tuffs, Uinta basin, Utah. And Ages of Late Paleogene and Neogene Tuffs and the Beginning of Rapid Regional Extension, Eastern Boundary of the Basin and Range Province near Salt lake City, Utah: In: Evolution of Sedimentary basins-Uinta and Piceance Basins. U. S. Geological Survey Bulletin 1787-J, K.
- Flynn, J. J., 1986, Correlation and geochronology of middle Eocene strata from the western United States: Palaeogeographic, Palaeoclimatology, Palaeoecology, v. 55, p. 335-406.
- Hamblin, A. H. and Miller, W. E., 1987, Paleogeography and Paleoecology of the Myton Pocket, Uinta Basin, Utah (Uinta Formation-Upper Eocene): Brigham Young University Geology Studies, v. 34, p 33-60.
- Kay, J. L., 1934, Tertiary formations of the Uinta Basin, Utah: Annals of Carnegie Museum, v. 23, p. 357-371.
- Marsell, R. E., 1964, Geomorphology of the Uinta Basin-A Brief Sketch: Thirteenth annual Field Conference. Association of Petroleum Geologists, p. 34-46.
- Marsh, O. C., 1871, on the geology of the Eastern Uintah Mountains: American Journal of Science and Arts, v. 1, p. 1-8.
- \_\_\_\_\_, 1875a, Ancient lake basins of the Rocky Mountain region: American Journal of Science and Arts, v. 9, p. 49-52.
- \_\_\_\_\_, 1875b, Notice of new Tertiary mammals, IV: American Journal of Science and Arts, Third Series, v. 9, p. 239-250.



- Osborn, H. F., 1895, Fossil mammals of the Uinta beds, expedition of 1894: American Museum of Natural History Bulletin, v. 7, p. 71-106.
- 1929, The Titanotheres of Ancient Wyoming, Dakota and Nebraska: Monograph of the U. S. Geological Survey, v. 55, p. 1-953.
- Peterson, O. A., 1931c, new species from the Oligocene of the Uinta: Annals of Carnegie Museum, v. 21, p. 61-78.
- Peterson, O. A. and Kay, J. L., 1931, The Upper Uinta Formation of Northeastern Utah: Annals of the Carnegie Museum, v. 20, p. 293-306.
- Prothero, D. R., 1996, Magnetic Stratigraphy and biostratigraphy of the middle Eocene Uinta Formation, Uinta Basin, Utah, *in* Prothero, D. R., and Emry, R. J. editors, The Terrestrial Eocene-Oligocene Transition in North America, p. 3-24.
- Rasmussen, D. T., Conroy, G. C., Friscia, A. R., Townsend, K. E. and Kinkel, M. D., 1999, Mammals of the middle Eocene Uinta Formation: Vertebrate Paleontology of Utah, p. 401-420.
- Riggs, E. S., 1912. New or Little Known Titanotheres from the Lower Uintah Formations: Field Museum of Natural History Geological Series, v. 159, p. 17-41.
- Ryder, R. T., Fouch, T. D., Elison, J. H., 1976, Early Tertiary sedimentation in the western Uinta Basin, Utah: Geological Society of America Bulletin v. 87, p. 496-512.
- Scott, W. B., 1945, The Mammalia of the Duchesne River Oligocene: Transactions of the American Philosophical Society, v. 34, p. 209-253.
- Stucky, R. K., 1992, Mammalian faunas in North America of Bridgerian to early Arikareean "age" (Eocene and Oligocene), *in* Prothero, D. R., and Berggren, W. A., eds., Eocene-Oligocene climatic and biotic evolution: Princeton University Press, p. 464-493.
- Wood, H. E., 1934, Revision of the Hyrachyidae: American Museum of Natural History Bulletin, v. 67, p. 181-295.
- and others, 1941, Nomenclature and Correlation of the North America Continental Tertiary: Geol. Soc. Amer. Bull., v. 52, no. 1, Jan. 1, p. 1-48. 52, no. 1, Jan. 1, p. 1-48.

**WORKSHEET**  
**APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 02/17/2009

API NO. ASSIGNED: 43-047-40562

WELL NAME: NBU 920-32K

OPERATOR: KERR-MCGEE OIL & GAS ( N2995 )

PHONE NUMBER: 720-929-6666

CONTACT: RALEEN WHITE

PROPOSED LOCATION:

NESW 32 090S 200E

SURFACE: 2095 FSL 1813 FWL

BOTTOM: 2095 FSL 1813 FWL

COUNTY: Uintah

LATITUDE: 39.98943 LONGITUDE: -109.6928

UTM SURF EASTINGS: 611603 NORTHINGS: 4427192

FIELD NAME: NATURAL BUTTES ( 630 )

INSPECT LOCATN BY: / /

Tech Review

Initials

Date

Engineering

DRD

4/23/09

Geology

Surface

LEASE TYPE: 3 - State

LEASE NUMBER: ML-22140

SURFACE OWNER: 2 - Indian

PROPOSED FORMATION: WSMVD

COALBED METHANE WELL? NO

RECEIVED AND/OR REVIEWED:

☒ Plat  
☒ Bond: Fed[] Ind[] Sta[] Fee[]  
(No. 22013542 )  
☒ Potash (Y/N)  
☒ Oil Shale 190-5 (B) or 190-3 or 190-13  
☒ Water Permit  
(No. 43-8496 )  
☒ RDCC Review (Y/N)  
(Date: )  
☒ Fee Surf Agreement (Y/N)  
☒ Intent to Commingle (Y/N)

LOCATION AND SITING:

R649-2-3.

Unit: NATURAL BUTTES

R649-3-2. General

Siting: 460 From Qtr/Qtr & 920' Between Wells

R649-3-3. Exception

☒ Drilling Unit

Board Cause No: 123-14

Eff Date: 12-2-1999

Siting: 460' to 480' from 920' Between Wells

R649-3-11. Directional Drill

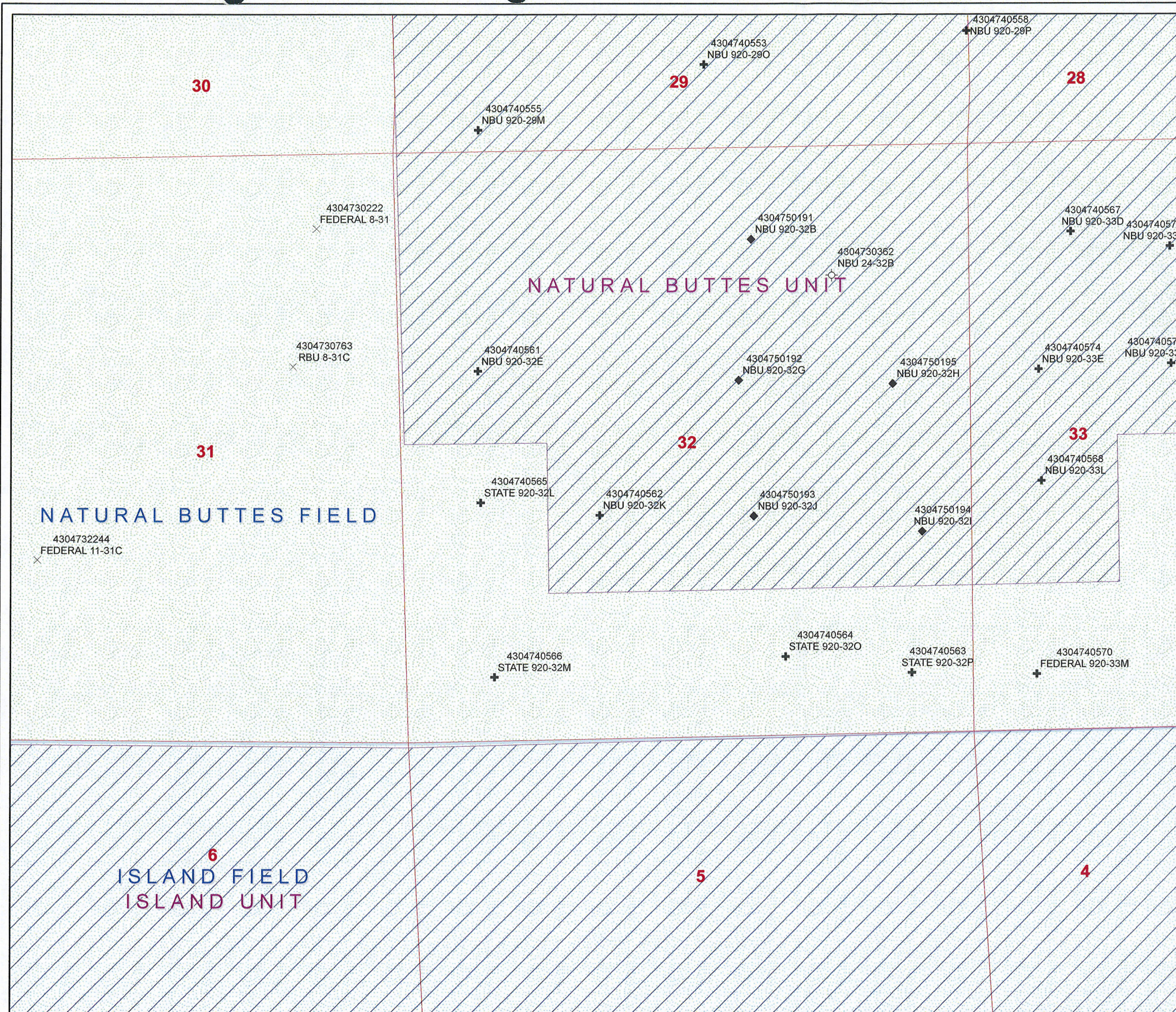
COMMENTS:

*See Separate File*

STIPULATIONS:

*1- Federal Approval  
2- Oil Shale  
3- Surface Csg Cont Stip.  
4- STATEMENT OF BASIS*

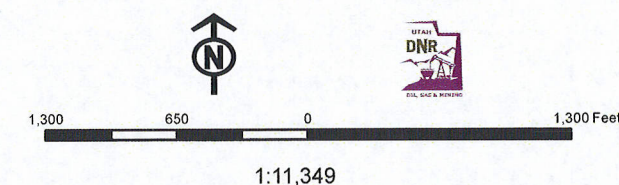




**API Number: 4304740562**  
**Well Name: NBU 920-32K**  
**Township 09.0 S Range 20.0 E Section 32**  
**Meridian: SLBM**  
Operator: KERR-MCGEE OIL & GAS ONSHORE, L.P.

Map Prepared:  
Map Produced by Diana Mason

Units	Wells Query Events
<b>STATUS</b>	<all other values>
ACTIVE	<b>GIS_STAT_TYPE</b>
EXPLORATORY	<Null>
GAS STORAGE	APD
NF PP OIL	DRL
NF SECONDARY	GI
PI OIL	GS
PP GAS	LA
PP GEOTHERML	NEW
PP OIL	OPS
SECONDARY	PA
TERMINATED	PGW
<b>Fields</b>	POW
<b>STATUS</b>	RET
ACTIVE	SGW
COMBINED	SOW
Sections	TA
	TW
	WD
	WI
	WS





# Application for Permit to Drill

## Statement of Basis

4/27/2009

Utah Division of Oil, Gas and Mining

Page 1

<b>APD No</b>	<b>API WellNo</b>	<b>Status</b>	<b>Well Type</b>	<b>Surf Ownr</b>	<b>CBM</b>
1447	43-047-40562-00-00		GW	I	No
<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>Surface Owner-APD</b>		
<b>Well Name</b>	NBU 920-32K	<b>Unit</b>	NATURAL BUTTES		
<b>Field</b>	NATURAL BUTTES	<b>Type of Work</b>			
<b>Location</b>	NESW 32 9S 20E S 2095 FSL 1813 FWL GPS Coord (UTM) 611603E 4427192N				

### Geologic Statement of Basis

Kerr McGee proposes to set 2,800' of surface casing at this location. The depth to the base of the moderately saline water at this location is estimated to be at a depth of 1,400'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the center of Section 32. The surface formation at this site is the Uinta Formation. The Uinta Formation is made up of interbedded shales and sandstones. The sandstones are mostly lenticular and discontinuous and should not be a significant source of useable ground water. The proposed casing and cement should adequately protect. Any usable ground water.

Brad Hill  
APD Evaluator

4/27/2009  
Date / Time

### Surface Statement of Basis

The surface rights for the proposed well are owned by the Ute Tribe. The operator is responsible for obtaining any required surface permits or rights-of-way.

Brad Hill  
Onsite Evaluator

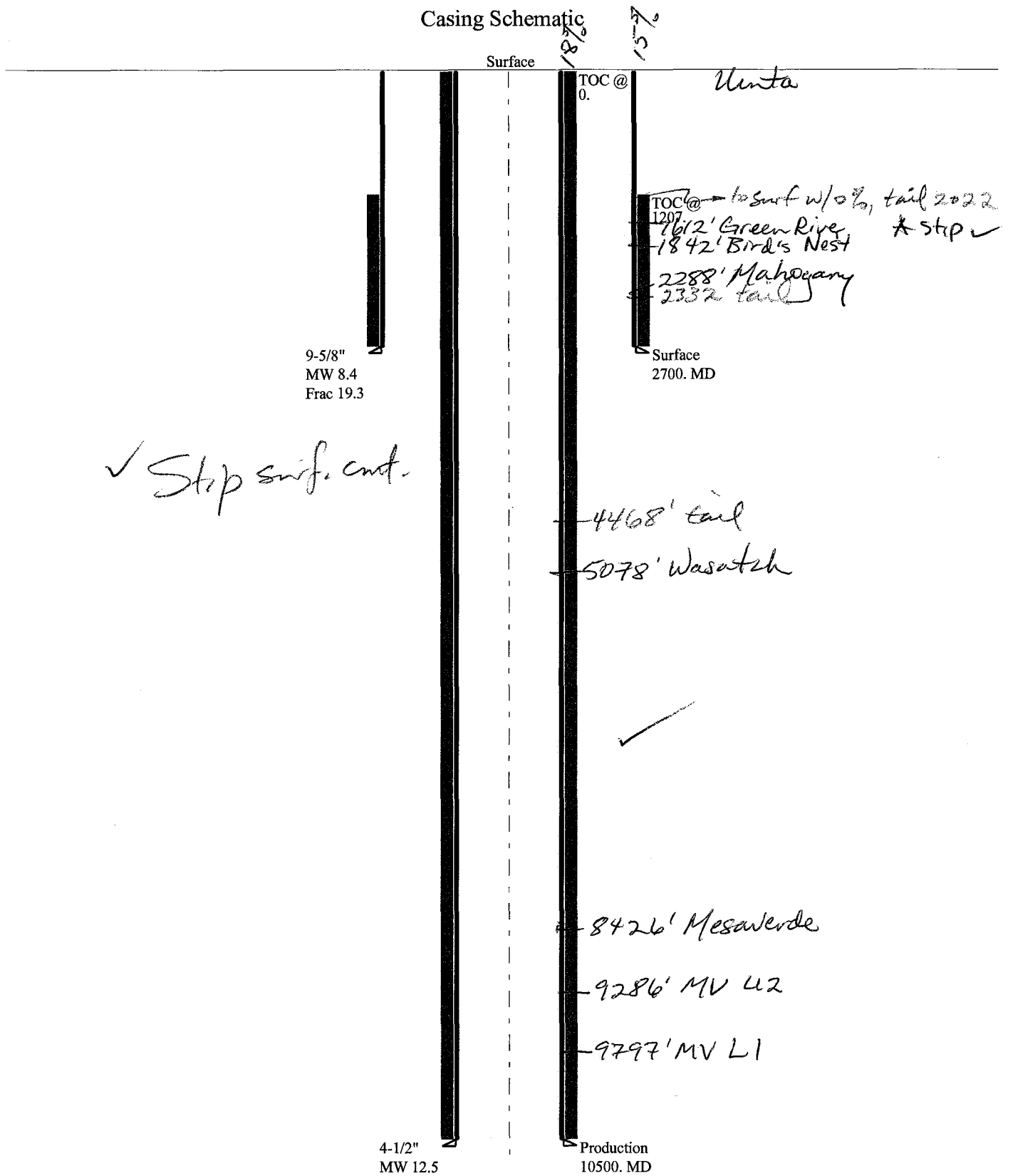
4/27/2009  
Date / Time

### Conditions of Approval / Application for Permit to Drill

<b>Category</b>	<b>Condition</b>
	None

43047405620000 NBU 920-32K

Casing Schematic



Well name:

**43047405620000 NBU 920-32K**Operator: **Kerr McGee Oil & Gas Onshore L.P.**String type: **Surface**

Project ID:

**43-047-40562-0000**Location: **Uintah County, Utah****Design parameters:****Collapse**Mud weight: 8.400 ppg  
Design is based on evacuated pipe.**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**H2S considered? No  
Surface temperature: 75 °F  
Bottom hole temperature: 113 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 1,300 ft

Cement top: 1,207 ft

**Burst**Max anticipated surface  
pressure: 2,106 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 2,700 psi

No backup mud specified.

**Tension:**8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)Tension is based on buoyed weight.  
Neutral point: 2,364 ft**Non-directional string.****Re subsequent strings:**Next setting depth: 10,500 ft  
Next mud weight: 12.500 ppg  
Next setting BHP: 6,818 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 2,700 ft  
Injection pressure: 2,700 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	2700	9.625	36.00	J-55	LT&C	2700	2700	8.796	1172
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	1178	2020	1.715	2700	3520	1.30	85	453	5.32 J

Prepared Helen Sadik-Macdonald  
by: Div of Oil, Gas & MiningPhone: (801) 538-5357  
FAX: (801) 359-3940Date: April 16, 2009  
Salt Lake City, Utah**Remarks:**

Collapse is based on a vertical depth of 2700 ft, a mud weight of 8.4 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop &amp; Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

*Engineering responsibility for use of this design will be that of the purchaser.*

Well name: **43047405620000 NBU 920-32K**

Operator: **Kerr McGee Oil & Gas Onshore L.P.**

String type: **Production**

Project ID:  
43-047-40562-0000

Location: **Uintah County, Utah**

### Design parameters:

#### Collapse

Mud weight: 12.500 ppg  
Internal fluid density: 2.330 ppg

### Minimum design factors:

#### Collapse:

Design factor 1.125

#### Burst:

Design factor 1.00

### Environment:

H2S considered? No  
Surface temperature: 75 °F  
Bottom hole temperature: 222 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 1,500 ft

Cement top: Surface

#### Burst

Max anticipated surface pressure: 4,508 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 6,818 psi

No backup mud specified.

#### Tension:

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

### Non-directional string.

Tension is based on buoyed weight.

Neutral point: 8,538 ft

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	10500	4.5	11.60	P-110	LT&C	10500	10500	3.875	916.3
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	5547	7580	1.366	6818	10690	1.57	99	279	2.82 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: (801) 538-5357  
FAX: (801) 359-3940

Date: March 26, 2009  
Salt Lake City, Utah

#### Remarks:

Collapse is based on a vertical depth of 10500 ft, a mud weight of 12.5 ppg. An internal gradient of .121 psi/ft was used for collapse from TD. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

# BOPE REVIEW

Kerr-McGee NBU 920-32K API 43-047-40562-0000

## INPUT

Well Name

Kerr-McGee NBU 920-32K API 43-047-40562-0000			
String 1	String 2		
Casing Size (")	9 5/8	4 1/2	
Setting Depth (TVD)	2700	10500	
Previous Shoe Setting Depth (TVD)	40	2700	
Max Mud Weight (ppg)	8.4	12.5	✓
BOPE Proposed (psi)	500	5000	
Casing Internal Yield (psi)	3520	10690	
Operators Max Anticipated Pressure (psi)	6705	12.3 ppg	✓

Calculations	String 1	9 5/8 "	
Max BHP [psi]	.052*Setting Depth*MW =	1179	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) [psi]	Max BHP-(0.12*Setting Depth) =	855	NO Air Drill to surface shoe with diverter
MASP (Gas/Mud) [psi]	Max BHP-(0.22*Setting Depth) =	585	NO
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth) =	594	NO Reasonable Depth in area
Required Casing/BOPE Test Pressure		2464	psi
*Max Pressure Allowed @ Previous Casing Shoe =		40	psi *Assumes 1psi/ft frac gradient

Calculations	String 2	4 1/2 "	
Max BHP [psi]	.052*Setting Depth*MW =	6825	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) [psi]	Max BHP-(0.12*Setting Depth) =	5565	NO
MASP (Gas/Mud) [psi]	Max BHP-(0.22*Setting Depth) =	4515	YES ✓
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth) =	5109	← NO Reasonable
Required Casing/BOPE Test Pressure		5000	psi
*Max Pressure Allowed @ Previous Casing Shoe =		2700	psi ← *Assumes 1psi/ft frac gradient



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, Utah 84145-0155

### IN REPLY REFER TO:

3160

(UT-922)

March 2, 2009

### Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

Subject: 2009 Plan of Development Natural Buttes Unit Uintah County, Utah.

Pursuant to email between Diana Whitney, Division of Oil, Gas and Mining, and Mickey Coulthard, Utah State Office, Bureau of Land Management, the following wells are planned for calendar year 2009 within the Natural Buttes Unit, Uintah County, Utah.

API #	WELL NAME	LOCATION
-------	-----------	----------

(Proposed PZ Wasatch/MesaVerde)

43-047-40553	NBU 920-29O	Sec 29 T09S R20E 0746 FSL 2465 FEL
43-047-40554	NBU 920-29L	Sec 29 T09S R20E 1572 FSL 0754 FWL
43-047-40555	NBU 920-29M	Sec 29 T09S R20E 0159 FSL 0757 FWL
43-047-40556	NBU 920-29I	Sec 29 T09S R20E 2164 FSL 0400 FEL
43-047-40557	NBU 920-29K	Sec 29 T09S R20E 2208 FSL 2197 FWL
43-047-40558	NBU 920-29P	Sec 29 T09S R20E 1038 FSL 0018 FEL
43-047-40559	NBU 920-29J	Sec 29 T09S R20E 1977 FSL 1747 FEL
43-047-40560	NBU 920-29N	Sec 29 T09S R20E 1254 FSL 2098 FWL
43-047-40542	NBU 920-22O	Sec 22 T09S R20E 0198 FSL 2487 FEL
43-047-40543	NBU 920-22K	Sec 22 T09S R20E 2128 FSL 2497 FWL
43-047-40544	NBU 920-22I	Sec 22 T09S R20E 1965 FSL 0599 FEL
43-047-40545	NBU 920-22J	Sec 22 T09S R20E 2086 FSL 1575 FEL
43-047-40538	NBU 920-20B	Sec 20 T09S R20E 1229 FNL 1580 FEL
43-047-40536	NBU 920-20C	Sec 20 T09S R20E 0963 FNL 1754 FWL
43-047-40537	NBU 920-20F	Sec 20 T09S R20E 1794 FNL 2199 FWL
43-047-40539	NBU 920-20E	Sec 20 T09S R20E 1644 FNL 1084 FWL
43-047-40540	NBU 920-20D	Sec 20 T09S R20E 0646 FNL 0686 FWL
43-047-40541	NBU 920-21J	Sec 21 T09S R20E 2346 FSL 1748 FEL
43-047-40561	NBU 920-32E	Sec 32 T09S R20E 2052 FNL 0707 FWL
43-047-40562	NBU 920-32K	Sec 32 T09S R20E 2095 FSL 1813 FWL
43-047-40567	NBU 920-33D	Sec 33 T09S R20E 0821 FNL 0925 FWL
43-047-40568	NBU 920-33L	Sec 33 T09S R20E 2299 FSL 0625 FWL
43-047-40574	NBU 920-33E	Sec 33 T09S R20E 2079 FNL 0611 FWL
43-047-40575	NBU 920-33C	Sec 33 T09S R20E 0971 FNL 1851 FWL

43-047-40576 NBU 920-33F Sec 33 T09S R20E 2048 FNL 1845 FWL  
43-047-40535 NBU 920-15PT Sec 15 T09S R20E 0591 FSL 0696 FEL

This office has no objection to permitting the wells at this time.

/s/ Michael L. Coulthard

bcc: File – Natural Buttes Unit  
Division of Oil Gas and Mining  
Central Files  
Agr. Sec. Chron  
Fluid Chron

MCoulthard:mc:3-2-09



JON M. HUNTSMAN, JR.  
Governor

GARY R. HERBERT  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

April 27, 2009

Kerr-McGee Oil & Gas Onshore, LP  
P O Box 173779  
Denver, CO 80202-3779

Re: NBU 920-32K Well, 2095' FSL, 1813' FWL, NE SW, Sec. 32, T. 9 South, R. 20 East,  
Uintah County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. § 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the attached Conditions of Approval, approval to drill the referenced well is granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-047-40562.

Sincerely,

Gil Hunt  
Associate Director

pab  
Enclosures

cc: Uintah County Assessor  
Bureau of Land Management, Vernal Office  
SITLA



Operator: Kerr-McGee Oil & Gas Onshore, LP

Well Name & Number NBU 920-32K

API Number: 43-047-40562

Lease: ML-22140

Location: NE SW Sec. 32 T. 9 South R. 20 East

### Conditions of Approval

#### 1. General

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

#### 2. Notification Requirements

The operator is required to notify the Division of Oil, Gas and Mining of the following action during drilling of this well:

- 24 hours prior to cementing or testing casing – contact Dan Jarvis
- 24 hours prior to testing blowout prevention equipment – contact Dan Jarvis
- 24 hours prior to spudding the well – contact Carol Daniels
- Within 24 hours of any emergency changes made to the approved drilling program – contact Dustin Doucet
- Prior to commencing operations to plug and abandon the well – contact Dan Jarvis

The operator is required to get approval from the Division of Oil, Gas and Mining before performing any of the following actions during the drilling of this well:

- Plugging and abandonment or significant plug back of this well – contact Dustin Doucet
- Any changes to the approved drilling plan – contact Dustin Doucet

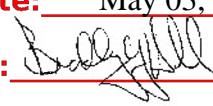
The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voice mail message if the person is not available to take the call):

- Dan Jarvis at: (801) 538-5338 office (801) 942-0871 home
- Carol Daniels at: (801) 538-5284 office
- Dustin Doucet at: (801) 538-5281 office (801) 733-0983 home

#### 3. Reporting Requirements

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. Compliance with the State of Utah Antiquities Act forbids disturbance of archeological, historical, or paleontological remains. Should archeological, historical or paleontological remains be encountered during your operations, you are required to immediately suspend all operations and immediately inform the Trust Lands Administration and the Division of State History of the discovery of such remains.
5. Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis. (Copy Attached)
6. In accordance with Order in Cause No. 190-5(b) dated October 28, 1982, the Operator shall comply with requirements of Rules R649-3-31 and R649-3-27 pertaining to Designated Oil Shale Areas. Additionally, the operator shall ensure that the surface and/or production casing is properly cemented over the entire oil shale interval as defined by Rule R649-3-31. The Operator shall report the actual depth the oil shale is encountered to the Division.
7. Surface casing shall be cemented to the surface.
8. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>			
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML-22140			
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b> UTE			
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES			
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 920-32K			
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2095 FSL 1813 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NESW Section: 32 Township: 09.0S Range: 20.0E Meridian: S		<b>9. API NUMBER:</b> 43047405620000			
<b>PHONE NUMBER:</b> 720 929-6007 Ext		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES			
<b>COUNTY:</b> Uintah		<b>STATE:</b> UTAH			
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>					
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>				
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 4/27/2010  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ACIDIZE  <input type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input type="checkbox"/> OTHER         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input checked="" type="checkbox"/> APD EXTENSION          OTHER: _____       </td> </tr> </table>		<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input checked="" type="checkbox"/> APD EXTENSION OTHER: _____
<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input checked="" type="checkbox"/> APD EXTENSION OTHER: _____			
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> Kerr-McGee Oil & Gas Onshore, L.P. (Kerr-McGee) respectfully requests an extension to this APD for the maximum time allowed. Please contact the undersigned with any questions and/or comments. Thank you.					
<b>Approved by the Utah Division of Oil, Gas and Mining</b>		<b>Date:</b> May 03, 2010  <b>By:</b> 			
<b>NAME (PLEASE PRINT)</b> Danielle Piernot	<b>PHONE NUMBER</b> 720 929-6156	<b>TITLE</b> Regulatory Analyst			
<b>SIGNATURE</b> N/A		<b>DATE</b> 4/27/2010			

**RECEIVED** April 27, 2010



## The Utah Division of Oil, Gas, and Mining

- State of Utah  
- Department of Natural Resources

Electronic Permitting System - Sundry Notices

### Request for Permit Extension Validation Well Number 43047405620000

**API:** 43047405620000

**Well Name:** NBU 920-32K

**Location:** 2095 FSL 1813 FWL QTR NESW SEC 32 TWNP 090S RNG 200E MER S

**Company Permit Issued to:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**Date Original Permit Issued:** 4/27/2009

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision. Following is a checklist of some items related to the application, which should be verified.

- If located on private land, has the ownership changed, if so, has the surface agreement been updated? ☐ Yes ☒ No
- Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location? ☐ Yes ☒ No
- Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? ☐ Yes ☒ No
- Have there been any changes to the access route including ownership, or rightof- way, which could affect the proposed location? ☐ Yes ☒ No
- Has the approved source of water for drilling changed? ☐ Yes ☒ No
- Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation? ☐ Yes ☒ No
- Is bonding still in place, which covers this proposed well? ☒ Yes ☐ No

**Approved by the  
Utah Division of  
Oil, Gas and Mining**

**Signature:** Danielle Piernot

**Date:** 4/27/2010

**Title:** Regulatory Analyst **Representing:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**Date:** May 03, 2010

**By:** 

**RECEIVED** April 27, 2010

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML-22140
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b> UTE
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 920-32K
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2095 FSL 1813 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NESW Section: 32 Township: 09.0S Range: 20.0E Meridian: S		<b>9. API NUMBER:</b> 43047405620000
<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES		<b>COUNTY:</b> UINTAH
<b>STATE:</b> UTAH		

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 4/27/2011  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input checked="" type="checkbox"/> <b>APD EXTENSION</b> OTHER: <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span>

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.  
  
 Kerr-McGee Oil & Gas Onshore, L.P. (Kerr-McGee) respectfully requests an extension to this APD for the maximum time allowed. Please contact the undersigned with any questions and/or comments. Thank you.

Approved by the  
Utah Division of  
Oil, Gas and Mining

Date: 04/14/2011

By:

<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A		<b>DATE</b> 4/7/2011





## The Utah Division of Oil, Gas, and Mining

- State of Utah  
- Department of Natural Resources

Electronic Permitting System - Sundry Notices

### Request for Permit Extension Validation Well Number 43047405620000

**API:** 43047405620000

**Well Name:** NBU 920-32K

**Location:** 2095 FSL 1813 FWL QTR NESW SEC 32 TWNP 090S RNG 200E MER S

**Company Permit Issued to:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**Date Original Permit Issued:** 4/27/2009

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision. Following is a checklist of some items related to the application, which should be verified.

- If located on private land, has the ownership changed, if so, has the surface agreement been updated? ☐ Yes ☒ No
- Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location? ☐ Yes ☒ No
- Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? ☐ Yes ☒ No
- Have there been any changes to the access route including ownership, or rightof- way, which could affect the proposed location? ☐ Yes ☒ No
- Has the approved source of water for drilling changed? ☐ Yes ☒ No
- Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation? ☐ Yes ☒ No
- Is bonding still in place, which covers this proposed well? ☒ Yes ☐ No

**Signature:** Andy Lytle

**Date:** 4/7/2011

**Title:** Regulatory Analyst **Representing:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**RECEIVED** Apr. 07, 2011



GARY R. HERBERT

Governor

GREG BELL

Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER

Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA

Division Director

June 14, 2012

Kerr-McGee Oil & Gas Onshore, L.P.  
P.O. Box 173779  
Denver, CO 80217

Re: APD Rescinded – NBU 920-32K, Sec. 32, T.9S, R. 20E  
Uintah County, Utah API No. 43-047-40562

Ladies and Gentlemen:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on April 27, 2009. On May 3, 2010 and April 14, 2011 the Division granted a one-year APD extension. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective June 14, 2012.

If any previously unreported operations have been performed on this well location, it is imperative that you notify the Division immediately.

Sincerely,

Diana Mason

Environmental Scientist

cc: Well File  
Bureau of Land Management, Vernal  
SITLA, Ed Bonner